Textile World

ESTABLISHED 1868

CONTENTS MAY, 1933

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MANAGEMENT

One More Chance (Editorial) 47
Washington Letter 49
What Textile Men Think About Regulation of Industry 50
Textile Pot Boils a Bit 51
Cotton Textile Institute Honored 52
Federal Legislation Is Theme-Song of A.C.M.A. Meeting 56
Knitting Week Dominated by Events at Capital 87
TEXTILE WORLD Analyst..... 99

MERCHANDISING

Cotton Week Improves with Age..... 53
Merchandising Study Shows Need for Vertical Mergers 54
Draperies Offer Outlet for Cotton Dress Goods 63
Cellophane Faced Fabrics Open New Markets 73

METHODS

Improving Operation of Cotton Looms..... 60
Worsted Twist Defects—Their Correction 62
Imitation Backed Cloths; Wadding Threads 64
Domino Crepe Joins Season's Style Parade..... 66
Spinning Improvement Discussed by S. T. A. Carolinas 67
Conditioning Rayon Crepe Important Operation 69
F. F. Defects—Their Diagnosis and Cure 70
Abolish Skein Test, D-13 Advised 74
Engineering Economies in Silk Finishing 76
Good Layout Expedites Folding and Packing..... 81

MILL ENGINEERING

Steam and Electric Problems Scanned by Mechanics 78
Combining Group and Unit Drives..... 80
New Machinery and Processes 96

MEN

Budgeting by Overseer for Variable Operation 68
Overseers' Round-Table 82
The Personal Page 95

MATERIALS

Saving Oil by Using Salt in Silk Soaking 72
Fatty Alcohol Sulphates—Properties and Use..... 79

INDUSTRY BRANCHES

Cotton Digest 100
Wool Digest 102
Silk Digest 104
Rayon Digest 106
Knitting Digest 108
Processing Digest 110
Industry-Wide Events 98

DEPARTMENTS

Overseers' Round-Table 82
Personal Page 95
Questions and Answers 84
New Machinery and Processes 96
New Publications and Business News. 86
TEXTILE WORLD Analyst 99
Quotations 112

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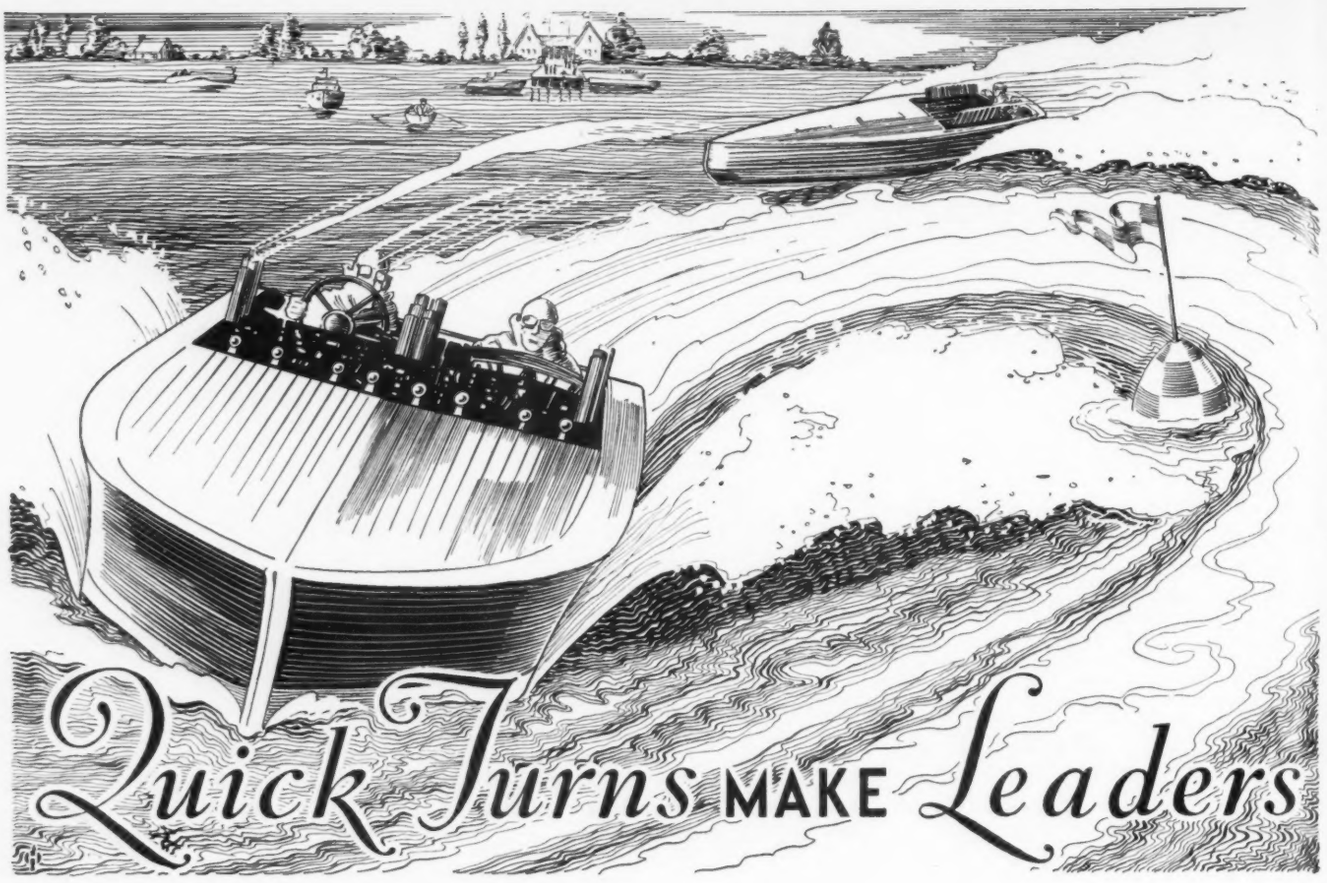

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Editor: DOUGLAS G. WOOLF

One More Chance

INDUSTRY is to be given another chance to find its way out of the maze into which war, technological advance, unbridled individualism, and lack of control power have led it.

That chance, it appears at this writing, is to take the form of organized cooperative effort within individual industries, whereby the will of the majority will be imposed upon the minority, with of course proper provision for protection of the public interest.

Such has been the outcome of probably the most momentous month in our industrial history.

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It is vital that all of us should have a clear realization of just what has happened during the month.

Two extreme schools of thought have been conducting a national debate. On the one hand, is the group whose creed is that industry has failed; that it has neither the will nor the ability to manage its own affairs; and that the only answer is complete socialization. At the other extreme is the group which "resents" any interference, on the part of any agency, with an individual industrialist's "private" affairs; and whose automatic reaction to any control proposal is a negative one.

For a while, it looked as if the first of these groups was to have its way. Either the Black 30-hour bill or Miss Perkins' bill to regulate labor in industry would have eliminated individualism from American industry.

Gradually, however, an intermediate school of thought made itself heard. It subscribes to the doctrine of neither the extreme left nor the extreme right. It has had to submit to the criticism which "middle of the road" travelers always get from extremists—but apparently it has won the day.

As a member of the intermediate school, we rejoice.

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Since the prosecution of plans now in the making demands the sympathetic support of all three groups, it is in order to re-state the doctrine of that school. First, it is necessary to explain its inability to go along with the other two.

This is an easy job, so far as the "right" wing is concerned. Those who still believe that the rights of the individual cannot be curtailed in the interests of the group are merely living in a bygone era. Their creed, the law of the survival of the fittest, has proved unworkable. Their persistence in clinging to such a creed should arouse pity, not scorn.

The arguments of the other extreme group cannot be dismissed so easily. On paper, they appear unassailable.

This group points to the sorry mess in which the world finds itself today. It argues that individual effort has had its chance, and that now the "state" must take over the job. As we progressed further and further into the depths of the depression, this outcome appeared more and more inevitable, and gained an increasing number of adherents.

A fundamental question arises, however. If industrialists, financiers, agriculturists, labor, and all of us, have failed, why should it be logical to expect that a "state," created by these same groups, could succeed? Is there some magic in government which imparts wisdom not to be found in those who establish the government?

(One of our good friends told us that, in arguing this way, we were like the man who stands outside his burning home discussing how best to put the fire out. Another friend, to whom we repeated this conversation, asked whether pouring oil on the flames was not just a little worse than doing nothing.)

To come down to cases, let us consider the measures advanced for the regulation of industry. We have expressed previously our reasons for opposing the Black 30-hour bill. Miss Perkins' bill is something else again.

If we were asked to write a prescription for the textile industry, we could not improve upon the one contained in that bill. In a masterly way, the Secretary summarized all the aspirations of industry itself, or rather of the enlightened majority in industry. The only difference is that we insist the job must be done by industry, and not by government. This insistence is based not upon a belief in the "divine right" of industry, but upon the conviction that self-government is the only method which promises permanent success. The other alternative would mean (1) the

gradual removal of individual incentive; and (2) the gradual dependence of all groups upon governmental aid and direction. We are by no means ready to admit that we have degenerated to the point where such a regime is the only answer.

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What, then, *is* the answer?

It is the one which is finding national expression as we write this. It is the doctrine, as we said before, of self-control by industries, with power to make that control operative, and with ample provision for the protection of the public interest.

This is not a new thought in textile manufacture. It was the psychology which led to the formation of the Cotton-Textile Institute seven years ago—and which brought to that Institute, just this month, the award for the outstanding achievement among trade associations for 1932.

Why, then, has not that branch of the textile industry been a profitable sphere of activity?

The answer to this is found in the fundamental weakness of all cooperative enterprise in industry to date—a weakness, incidentally, which the new plans aim to correct.

Briefly, there has been no way in which majority opinion in any one industry could be made the standard practice for all that industry. In the case of the Cotton-Textile Institute, for example, certain of its policies have had the support of 85% of the manufacturers, but have fallen short of their objective because of inability to effect 100% observance.

We are not trying to portray the other 15% as a satanic influence responsible for the profitless condition of the cotton manufacturing industry. The members of the minority were entitled to their individual opinions—and have been sincere in their beliefs. Nevertheless, as we have pointed out in these columns before, it would seem to be a safe assumption that 85% of a group cannot be wrong. The imposition of the will of 85% upon the other 15% could hardly be called tyranny. Furthermore, it is our belief that, if this method of determination were standard practice, the resulting policies would be accepted, in good grace, by the minority.

We do not believe industry is "stupid"; we believe it has not in the past had the power to govern itself.

▼

The benefits to be derived from industrial self-government with "teeth" in it, are these:

1. Price-chiseling below profitable levels could be restrained as an unfair form of competition.

2. Wage-chiseling below decent standards could be restrained not only as an unfair form of competition, but as an anti-social practice, and as a stupid policy, from a purely selfish standpoint, in that it destroys the buying-power of customers.

3. Unlimited operation of plants, day and night, long hours per week, without regard for the position of the consuming market, could be restrained on similar grounds.

Would such a combination of policies remove the potential reward for individual incentive and initiative? On the contrary, it would restore it. Under the conditions of the last few years, managerial enterprise and efficiency were useless weapons. If competitors could chisel prices and wages without restraint, what premium was there upon modern machinery and methods?

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The textile industry has a real job ahead of it. It must, in its several branches, develop constructive programs for the promulgation of the principles outlined above. It must cooperate with the Federal Government, and with other agencies, to the end that the interests of all groups—employers, employees, and the public—may be advanced, and none impaired. It must follow through—prepared for quick revision of those programs, as changing conditions necessitate.

It will not be an easy job. At times it will seem to be a discouraging one. But it offers the last chance for vindication of our American system—for this generation, at least.

If industry muffs this chance, government will take over the job.

SINCE the above was written, President Roosevelt has come out strongly for this rule by the majority, to which we have referred. . . . In his address before the Chamber of Commerce of the U. S., he said: "In almost every industry an overwhelming majority of the units of the industry are wholly willing to work together to prevent overproduction, to prevent unfair wages, to eliminate improper conditions. In the past success in attaining these objectives had been prevented by a small minority of units in many industries. I can assure you that you will have the cooperation of your Government in bringing these minorities to understand that their unfair practices are contrary to a sound public policy." . . . In his radio address to the nation the President said: "Government ought to have the right and will have the right, after surveying and planning for an industry, to prevent, with the assistance of the overwhelming majority of that industry, unfair practice and to enforce this agreement by the authority of government."

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IN FACT, one branch of the textile industry was isolated by the President, in his radio address, as an example. After explaining that the plans of the Administration did not contemplate "control of farming and of industry and of transportation, but of a "partnership" with each of these groups, he said: "Let me illustrate with an example. Take the cotton goods industry. It is probably true that 90% of the cotton manufacturers would agree to eliminate starvation wages, would agree to stop long hours of employment, would agree to stop child labor, would agree to prevent an overproduction that would result in unsalable surpluses. But, what good is such an agreement if the other 10% of cotton manufacturers pay starvation wages, require long hours, employ children in their mills and turn out burdensome surpluses? The unfair 10% could produce goods so cheaply that the fair 90% would be compelled to meet the unfair conditions. Here is where government comes in. Government ought to have the right and will have the right, after surveying and planning for an industry to prevent, with the assistance of the overwhelming majority of that industry, unfair practice and to enforce this agreement by the authority of government. The so-called anti-trust laws were intended to prevent the creation of monopolies and to forbid unreasonable profits to those monopolies. That purpose of the anti-trust laws must be continued, but these laws were never intended to encourage the kind of unfair competition that results in long hours, starvation wages and overproduction."

Farm and Labor Bills . . .

FORMER BECOMES LAW BUT LATTER IS UNDERGOING OPERATION

By Paul Wooton
Washington Correspondent, TEXTILE WORLD

REGARDLESS of what happens to the so-called 30-hour bill and control of industry legislation, the Secretary of Agriculture is convinced that under the new farm relief legislation much unwise competition can be eliminated and trade practices set up which will be of great value to those industries with which agreement contracts are made. The trade agreement provided for in the act is a contract with the Federal Government and in no sense can be interpreted as collusion among producers to increase prices in contravention of the anti-trust statutes.

It is believed at the Department of Agriculture that the act can be administered in such a way as to make it possible to pay 3 or 4c. more per pound to the producer of cotton and at the same time so reduce costs in other directions as to add little to the cost of cotton goods. It is believed that the act gives the Secretary such control, through the licensing feature, as to require cooperation from any minority that may desire to attempt competitive practices of the cut-throat variety.

More can be accomplished for cotton, it is believed, under the trade agreement section than under the adjustment provisions of the act. It is believed that almost immediate results can be obtained in so far as cotton is concerned. After the Farm Board's experience there is some hesitancy to suggest the plowing under of cotton but it is known that this is being given consideration.

Before the bill was passed the officials who will administer the new act were conferring with representatives of the various processors so that the commodity hearings could be made as brief as possible. For that reason work on the all-important regulations was well advanced before the actual hearings. It also was decided before the bill was passed that all hearings would be open to consumers, producers, processors, commission men or anyone else interested. Every one concerned was to have an opportunity to express an opinion as to the amount of the processing tax and the amount of benefit payments.

It is fully expected that one of the features of the agreement with the textile industry will be an understanding as to hours of labor. It is known that Secretary Wallace is determined to check price-slashing practices.

As this is written, there still is some possibility that the Smith cotton option plan may be used instead of the domestic allotment plan. In that event the Secretary of Agriculture simply will announce that the contracts are ready. Another possibility is that he might offer actual cotton in conjunction with the acreage reduction plan. In such a case if the market price for cotton is 8c., he might rent cotton acreage at $8. Instead of drawing the contract for $8 in cash it may be drawn for $4 in cash and $4 in kind. If the price goes up the producer gets an additional amount. The Smith option plan standing by itself hardly could succeed due to the lateness of the season. It would have been workable had the law been approved two months earlier.

There is uncertainty as to the amount of tax that it will be necessary to collect. Many do not agree with Secretary Wallace that 3 or 4c. could be added to the price of the raw material without making necessary an increase of more than 1c. a yd. in the wholesale price of much of the product, thereby adding only a few cents to the cost of a shirt. In that connection it is pointed out that the higher percentage of increase falls on the heavier, cheaper goods. As the tax is based on weight, such products as overalls and coarse sheets would incur a material increase in price, with likely reduction in consumption.

In decided contrast with the ease with which it went through the Senate the 30-hour bill has had tough sledding in the House. The 30-hour provision was lost quickly after the House Committee on Labor began operating on the measure but the name has stuck. There was immediate insistence upon a minimum wage provision and upon protection against imports of goods produced abroad with sweated labor. Never in the memory of most of the members of the House have they been so deluged with letters and telegrams in opposition to a legislative proposal. Then came the amendments which would have made Miss Perkins the Czarina of industry. Before the consideration of the Perkins amendments had gone far it looked as though the bill were dead. Then came all the clamor for control of industry, stabilization of production and suspension of anti-trust laws. The 30-hour bill was just the vehicle needed for that proposition. As this is written, the chances seem to favor the passage of a measure under which industry would make broad concessions as to hours of labor and the minimum wage in return for the suspension of various provisions of the Clayton and Sherman anti-trust acts. The Administration bill for control of industry, incorporating also public relief work, will doubtless be made public within the next few days, perhaps before this issue reaches its readers.

What Textile Men Think

ABOUT PROCEDURE FOR REGULATION OF INDUSTRY

◆ *If, as we indicated in the editorial on the first text-page of this issue, industry is to be given a chance to regulate itself, the thinking of textile manufacturers on this subject assumes paramount importance. In the accompanying article, we summarize a few of the many public expressions made recently by textile leaders.*—Editor.

"IF THERE has been in the past in the textile industry—or in any branch of it—a feeling of indifference toward Washington and the legislative deliberations of Congress, it would seem that this has now been displaced by an interest as intense as that of an old-fashioned revival meeting."

This statement, made recently by Howard E. Coffin, chairman of Southeastern Cottons, Inc., is well borne out by the facts. In witness thereof, we append some of the statements made or endorsed by textile manufacturers during the last month or two.

✦ The only way to absorb the unemployed in numbers sufficient to mean anything approaching a solution of the problem is to place them in industry and business now. This was the premise on which a Massachusetts delegation, led by Governor Ely, submitted to President Roosevelt a plan for the rehabilitation of labor and industry. Henry P. Kendall, president of the Kendall Co., was a member of the delegation, in which were also a labor representative and the State Commissioner for Labor.

The plan proposed: (1) Legislation to regulate hours of work for men and women on the principle of the five-day week and the shorter working day, with some flexibility upward and downward to meet the needs of particular industries. (2) Similar legislative control of hours to be operated by *plants* in each industry, in order that production and demand may be brought into reasonable equilibrium. (3) Minimum wage schedules suited to each industry and based somewhat on the cost of living and the standard of living in particular sections, to be coupled with the measures affecting hours of labor. (4) Permanent abolition of night employment of women and minors in industrial plants, especially between the hours of 10 p.m. and 6 a.m. (5) Reasonable modification of the anti-trust laws to permit agreements among the companies in individual industries, subject to Federal approval, in order to promote stabilization of wages and prices for the benefit of both employer and employee. (6) Flexibility in the provisions for regulating hours of work and establishing minimum wages, to permit readjustment as and when changes in demand for products and changes in the cost of living may require.

✦ "It is inevitable that the Government will soon adopt such measures as may be necessary to force us to put our house in order unless we voluntarily do so," said B. B. Gossett, retiring president of the American Cotton Manufacturers Association, at the annual convention of that organization. Among other things, this will undoubtedly mean the adoption of uniform and shorter hours throughout the entire industry, the allocation of business to insure the proper balance between production and demand, and perhaps even a minimum wage scale as well as many other practices which may prove dangerous and far-reaching.

"The handwriting is on the wall. The hour has struck. Therefore, in the existing crisis, the textile industry more than ever before faces the positive need of sustained cooperation. Our problems, although great and numerous, can be solved if we once resolve upon a determined, courageous and intelligent attack."

✦ The National Association of Hosiery Manufacturers unanimously adopted a resolution expressing sympathy with the objectives of the bills to regulate industry, but urging that the responsibility be placed in the hands of industry itself, with adequate provision for the protection of the public interest.

✦ A Brooklyn group of knitted outerwear manufacturers, at a recent meeting, passed a resolution endorsing the viewpoint that a reduction of the hours of labor will reduce unemployment and increase the nation's purchasing power, but pointing out difficulties in the 6-day week, 5-hour day, proposed in the Black bill. As an alternative, the group urged that a Federal bill be passed introducing a 40-hour week in the production of commodities for interstate commerce, so that no factory shall employ any worker more than eight hours per day, and that Saturday shall be established as a legal holiday.

✦ "To my mind, 30 hours is altogether too short a period for the work-week," stated Franklin W. Hobbs, president of the National Association of Wool Manufacturers, before the House committee on labor. "If, however, Congress decides in favor of such a short work-week, then we believe that a national minimum wage should be established. While we do not favor a minimum wage law under normal conditions, it may be necessary and justifiable in this emergency; but, if so, it must be national, for otherwise unfair competition will result." For the administration of such a minimum wage law, Mr. Hobbs advocated the creation of a national wage board.

✦ "I wish to go on record as being in favor of some Federal regulation of the hours of labor," said Ernest N. Hood, president of the National Association of Cotton Manufacturers, before the same committee. He expressed the opinion, however, that a less drastic reduction in the hours of labor than that proposed would be of greater benefit to all concerned in the cotton textile industry.

"My suggestion is that with a 48-hour week there would be a uniform basis for the entire industry," he said. "And if this were coupled with a minimum wage provision, then the mills would be on a more equitable basis of competition than in years. I would also suggest elimination of night work by women and minors, and a limitation of machine hours to not more than a second shift of 40 hours, with exceptions for such finishing machinery as must be operated in a continuous run."

In addition, Mr. Hood stated that it seemed to him highly desirable that the bill should contain a measure providing for relief from the provisions of the Sherman law to an

extent permitting trade associations to make production and price agreements subject to the approval of some Federal authority.

✦ Self-control of industry was recommended to the committee by Horace B. Cheney, speaking for the legislative committee of the Silk Association of America. Referring to the association's endorsement of a Federal law for a 30-hour week during the emergency, Mr. Cheney stated that this endorsement does not extend to Miss Perkins' bill, which he described as tyrannical and as placing power in the hands of persons having little knowledge of the intimate problems of the industries involved.

"We suggest that the Federal Trade Commission be given considerable and drastic powers, far greater than those which they at present exercise in simply enforcing existing laws in relation to truth in advertising and misrepresentation and fraud in trade. Let them be empowered to extend the scope of trade conferences; to hear testimony as to the rules and regulations which would most redound to the trade as a whole; to act as arbitrators and to find what would be to the advantage of the trade and public, and so rule, taking into the scope of their decisions all competitive conditions of the trade, both within the country and without . . . The necessary information and statistics in relation to trade activities can with very small expense be collected through trade associations."

"The suggested plan," he concluded, "has the advantage of not changing the form of our Government from a democracy to an autocracy, but the continuation of democratic principles. We believe self-control of industry to be very much better than enforced strait-jackets imposed by autocratic rule—better for the industry, better for the country, and infinitely less expensive and destructive."

✦ "Thirty hours as a minimum is so drastically low it may defeat its own purpose," the House committee was told by Col. C. F. H. Johnson, president of the Botany Worsted Mills. "Federal regulation, however, of the number of hours should be made effective."

Col. Johnson suggested that, in the matter of regulation by committee or council, no one committee can function for all industry. In the textile industry alone, he said, it would be wise if there were one for each branch.

"The depreciation of the last 12 years," he declared, "has affected the working capital of industry even more severely than those now having governmental credit open to them. Capital has had no return. Labor and management have accepted drastic reductions. Regular channels of replacement credits are not open. To carry on and continue the employment of labor, the ability to purchase raw material from the American grower and to pay taxes, credit facilities must be provided or we won't need either a minimum wage or a regulation of hours."

✦ That trade associations will become a greater force in industry than ever before, and will figure largely in bringing about a constructive return to prosperity, is the general feeling of industrial leaders and Government officials who gathered early this month for the annual convention of the Chamber of Commerce of the United States, Ramsay Peugnet, secretary of the Silk Association of America, Inc., points out upon his return. Emergency measures, designed to give official recognition to association agreements, place in the hands of trade associations the power for a leadership which should point the way to recovery, Mr. Peugnet believes.

Textile Pot Boils a Bit

IT WAS almost like old times in the textile markets last month. There was an air of cheerfulness and of bustle which was even more provocative of memories than was the boomlet of last summer.

Of course, it may all have been a shot in the arm—but it seemed rather real. At any rate, prices were going up and sellers were sort of snooty about taking on forward business.

Three causes were primarily responsible: (1) the gold-standard action, plus anticipation of the further inflationary program; (2) anticipation of the effects of the farm bill; (3) anticipation of the effects of the Black bill or similar measure to regulate industry. (The rather monotonous repetition of the word "anticipation" will be noted.)

Just a few examples of the practical effect of all this during the month of April: Cotton, October delivery, closed on the New York exchange March 31 at 6.61c.; on April 29 it closed at 8.13c. Print cloths, 38½-in., 64x60, 5.35, were quoted at $3\frac{1}{16}$-$\frac{1}{8}$c. on March 31 and at 4c. on April 29. Carded yarns, 20/2 warps, advanced from 15½c. on March 31 to 18c. on April 29. Raw silk, Japan 13-15, 78% was quoted at $1.18-1.23 on March 31, and at $1.51-1.56 on April 29. Rayon prices were advanced during the month on the basis of 5c. rise on 150 denier, bringing this number from 50c. to 55c. Since the end of April, additional advances have been made in all lines.

What next?

Like a lot of things nowadays, that is anybody's guess—and everybody is hazarding one. If optimism counts for anything, however, recent contacts in the textile markets convince one that happy days are here again.

Of course, much depends upon the future course of inflationary measures; upon the experience which the actual operation of the farm bill will teach; and upon the final disposition of industry-regulation legislation.

Meanwhile, don't forget the ultimate consumer. He must buy—or else all the bustle in wholesale markets is just so much shadow boxing. Mr. Consumer has shown a tendency to loosen up a bit lately (using regular money). He will be watched closely during the next few months.

Wage Increases Made

One of the most encouraging and significant recent trends in textiles was the announcement of wage increases in a number of southern mills the second week in May. The increases amounted to 10% and affected thousands of workers in South Carolina. Mills in which this action was taken included the four plants of the Brandon Corp., the five plants of Victor-Monaghan Co.; five Greenwood county mills—Grendel, Greenwood, Mathews, Panola and Ninety-Six; the three plants of Woodside Cotton Mills Co. and the three of Easley Cotton Mills. Wage advances were also reported from Pacolet Mfg. Co. and from the Pacific Mills at Lyman, S. C.

These pioneering firms were soon followed by other cotton manufacturers in North Carolina and elsewhere in the South; then the move spread to other sections and to other branches of textile manufacture. As we write, new announcements are being made daily.

Cotton-Textile Institute Honored

◆ *The honor accorded the Cotton-Textile Institute is shared by the industry itself, for its vision in creating this agency and its steadfastness in supporting it. It is gratifying to get from the outside this recognition of the job done by George Sloan and his associates in the Institute. It should spur them on to still further achievement.*—Editor.

THE Cotton-Textile Institute has received the 1932 Medal of Award presented by the American Trade Association Executives. This award is made annually in recognition of the most outstanding service performed by a trade association. In the previous year, 1931, the Institute received honorable mention.

In making the presentation in Washington on May 3, Secretary of Commerce Roper said:

"The award is given to the Cotton-Textile Institute, George A. Sloan, president, for its great accomplishment among one of the important basic industries of the United States, for its persistent and constructive methods in the elimination of undesirable working conditions for its thousands of employees; for its introduction of modern cost accounting in cotton mills; for its development and promotion of new uses for cotton and cotton products; and for the example it sets to American business of a trade association which is helpful to industry and public alike."

Mr. Sloan replied as follows:

"It is needless to tell you how much I appreciate the Secretary's remarks and how happy I am in accepting this honor in behalf of the Cotton-Textile Institute. In doing so I would be remiss if I failed to pay tribute to the inspiration that comes from association with the fine body of men represented here tonight—tribute also to a hard-working staff of associates in our New York office—to a loyal board of 70 directors, and to an active membership of several hundred mill executives, most of whom have been members of the organization since its formation in 1926.

"Besides, whatever our modest accomplishments in the Cotton-Textile Institute, a large measure of the credit is due to the foundation and to the policies laid down by my predecessor, Walker D. Hines, whom I regard as the outstanding exponent in America of sane, practical and sincere industrial cooperation. And that after all is the very essence of trade association effort."

The Cotton-Textile Institute was organized in October, 1926. Three major departments were established: (1) a Cost Section, (2) a New Uses Section, (3) a Statistical Section.

In an interview with TEXTILE WORLD, Mr. Sloan, commenting on the award, paid a high tribute to the part played by the members at large, by the men in the industry who serve as officers and directors, and by the personnel in the headquarters office. He mentioned particularly the work of Russell H. Leonard, Northern vice-president; B. B. Gossett, Southern vice-president, and Gerrish H. Milliken, treasurer.

Mr. Sloan also referred specifically to the individuals on his staff. These include Paul B. Halstead, secretary, who is also in charge of the Statistical Section; Sydney P. Munroe, assistant to the president and head of the Cost Section; C. K. Everett, in charge of the New Uses Section; Frederick Colt, merchandising adviser; Miss Catharine Cleveland, consumer-consultant in the New Uses Section, and James G. Torrens, who assists Mr. Halstead in the Statistical Section.

Cotton Mills Move

PRESIDENT ROOSEVELT was advised on May 10 by George A. Sloan, president of the Cotton-Textile Institute, that the directors of that organization, in pursuance of the Administration's plan for stabilization of employment, prevention of over-production, and self-regulation of industry, had recommended to their industry that during the emergency period the work-week in cotton mills shall not exceed 40 hrs.; and, further, that productive machinery be operated not more than two 40-hr. shifts per week.

When this recommendation receives the support of two-thirds of the industry, President Roosevelt will be so informed, with a view to determining what further steps may be necessary to insure 100% adherence. Since an overwhelming majority of the directors favored the plan, it had at the outset the support of 10,000,000 spindles or one-third of the industry. The President was advised that there was a strong probability that a preponderant part of the remaining two-thirds would approve the action of the board.

The resolution adopted contains the further proviso that two-thirds of the industry may recommend a decrease or increase in hours if, as and when it appears that the public needs are not being properly served; also, that an interim

The official "Cotton Week" poster stresses the slogan—Everybody uses cotton

Cotton Week

IMPROVES WITH AGE AND SELLS GOODS

THE country will be observing National Cotton Week when this issue reaches its readers. And the observance will be no luke-warm affair.

The Week is at the stage where increasing age means growth. From a new-born babe in 1931, it has progressed through the lusty-infant stage of 1932 to the status of a precocious three-year old this year. It has increased in size in at least the 3-to-1 ratio. En route, it has acquired an army of god-fathers and god-mothers ranging from Governors of States all the way down to business paper editors.

In fact, the ramifications of its sponsorship are bewildering—and defy complete cataloging. Fortunately, the heterogeneous nature of this cooperation is offset by the coordinating influence of the Cotton-Textile Institute. Promotional effort of this character is largely impotent if no centralized machinery exists. As a result of the Institute's activity, the individual currents of enthusiasm and support have been directed into one channel: national recognition of the utility, versatility and attractiveness of cotton goods.

Here are a few of the countless contributions to that cause:

Official recognition was accorded by the Governors of Alabama, Georgia, Tennessee and South Carolina, who designated by proclamation, National Cotton Week for public observance in their respective States . . . Gov. Ely of Massachusetts, in a special message, commended the effort and called it to the attention of the people of his State.

In trade circles, department stores, dry goods and notions chains, drug chains, grocery chains, and local stores throughout the country are featuring the promotion of cotton goods during the Week . . . Wholesale houses got in their good work in advance . . . Resident buying offices in New York broadcast special bulletins in anticipation of the event . . . Pattern companies got out special material . . . Advertising agencies, trade publications, and other media gave their support . . . Soap manufacturers featured National Cotton Week through the use of tags and by house-organ articles . . . The Durene Association supplied retail stores with merchandising suggestions.

Cotton manufacturers and selling agents, although rather busy watching the legislative mill at Washington, somehow found time to cooperate . . . Worth Street is a thing of beauty, with its banners, streamers, and posters.

No less a hostelry than the Waldorf-Astoria authorized cotton fabric menus for Cotton Week . . . Ten railroads helped in this way, or by similar means . . . The radio informed the (you count 'em) millions of the unseen audience. Among the broadcasters was George A. Sloan who was guest speaker, May 9, on the Clark Thread Co. program . . . Banks in New England and in the South encouraged local merchants to take an active part.

This list has to stop somewhere. Possibly a fitting climax is the news that dolls are "going" cotton this year, and that, according to the toy trade, the gingham dog and the calico cat "are commanding juvenile interest of boom proportions." Even the children are endorsing National Cotton Week.

for 40-Hour Week

of perhaps eight weeks should be allowed after there is assurance that the plan is to become effective, in order to permit proper readjustment.

[*Editor's Note:* The Institute has performed a public service by moving so promptly to align the cotton manufacturing industry with the Administration's plans. It has set an example for all industry . . . . This, of course, is only a start. There still remains the same problem which is left in the wake of all proposals for shortening the work-week, alone: namely, that of wages. If individual pay-envelopes are reduced in proportion to reduction in hours, no increased purchasing-power is provided. Naturally, ability to pay a higher rate per hour depends upon ability to make a fair profit. This, in turn, depends upon ability to restrain cutting of prices below profitable levels. The Institute's recommendation was made prior to announcement of the Administration's plans whereby such a result could be accomplished. We confidently expect that, when the cotton industry is in possession of this further knowledge, it will immediately promulgate a broader program—and thus lead the way, not only for other branches of textile manufacture, but for all American industry.]

Merchandising Study

REVEALS NEED FOR VERTICAL MERGERS

THE importance of the Harvard report on merchandising of cotton textiles cannot be over-emphasized. In less than a hundred pages are concentrated the results of careful investigation and fundamental thinking.

What impresses us most is the extent to which the authors have been fearless in their expression and yet have completely avoided arrogance of opinion. Definite lines for further study and action are indicated, but none is glorified into the panacea class.

On the negative side, two rather popular fallacies are discarded: (1) It is shown that the troubles of the cotton manufacturing industry cannot logically be dismissed simply on the grounds of excess capacity; (2) it is pointed out that the management of the industry cannot fairly be indicted on grounds of general incompetency.

On the positive side, three major factors are emphasized: (1) the necessity of creating products for which there is a profitable demand; (2) provision for specialization within organizations to permit adequate attention to merchandising; (3) a unity of control over the marketing, production, and financial functions of each business enterprise. Loosely interpreted, these three factors involve: (1) study of markets; (2) re-vamping of merchandising set-ups; (3) vertical mergers in which mills, selling houses and converters would participate.

Probably the most revolutionary statement in the book is the conclusion that the selling agency system is an outmoded method of marketing cotton textiles. However, the executives of such agencies are not doomed to extinction; they are promised important rôles in the new companies which would result from the integration mentioned above.

None of these conclusions is offered as susceptible of immediate and widespread application; each is indicative of a trend deserving and, in fact, demanding, study.

That is the point we wish to emphasize most. This report will be merely another addition to the industry's book-shelf if steps are not taken to follow through. The vision of the Textile Foundation, the scholarly performance of Professors Copeland and Learned, and the remarkable co-operation of the industry's advisory committee, will have been largely wasted. Every man in the industry should read the report; every company should analyze its own set-up in the light of the findings. It would seem that, in the advisory committee itself, there exists the nucleus of an organization which could foster the study and application of this work. We hope a way will be found to permit it to function to this end.—*Editor.*

IN SUMMARIZING the report, "Merchandising of Cotton Textiles: Methods and Organization," prepared by Professor Melvin T. Copeland and Assistant Professor Edmund P. Learned of the Harvard Graduate School of Business Administration, under a grant from the Textile Foundation, it is permissible to put the cart before the horse to some extent and treat immediately of the conclusions. Consequently, Chapters I, VII and VIII of the report will be taken up first.

Chapter I serves both as an introduction and as a partial summary of the conclusions reached. The purpose of the report is set forth as a determination of whether close examination of merchandising methods and organization reveals any defects that might account for some of the difficulties of the last 13 years. In this connection it is pointed out that, while the effects of the depression have not been overlooked, most of the analysis has been directed towards basic factors.

Before going on to some of the conclusions, it is well to point out that merchandising and sales management are regarded in the report as two separate functions; the latter being used in the narrow sense of mere direction and control of the selling force. The determination of what to make, at what time, and at what price come under the merchandising function.

Some of the conclusions stated in the initial chapter are as follows:

1. The industry lays too much stress on production activities and price differentials and gives too little attention to creative merchandising.

2. Flexibility in adjusting merchandising plans to varied and changing market requirements is of prime importance. One of the major problems is that of reconciling large-scale production with flexibility in merchandising. The growth of converters and other firms that specialize in order to secure flexibility should clearly indicate the need for taking care of this in an organization.

3. The jobs of merchandising and of sales supervision are different in character and should be separated, except in certain specific instances which are cited.

4. The cotton textile industry is not likely to attain a really healthy condition until production, merchandising and selling generally have been combined under one management for each branch of the industry. This means that many mills and selling agencies will have to be merged into groups small enough to be flexible and yet large enough to permit effective and reasonably economical organization. Unless these units attain as high a degree of merchandising flexibility as the present disintegrated firms possess, however, they will not be successful. Without criticising selling agents as individual business men, the selling agency, as an institution, is not suited to meet present conditions.

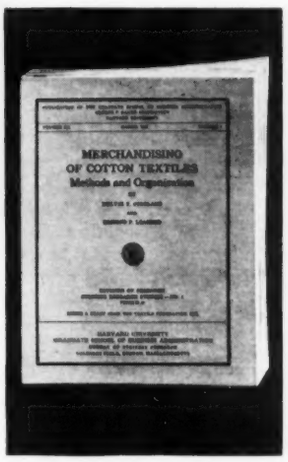
5. The economy of mass production of gray cloth tends to create a perpetual buyer's market. With the merchandising operations all along the line so split up and confused there is room for many unwholesome practices.

At this point it might be objected that the above conclusions are generalizations. In dealing with such a complicated industry they must necessarily be so, and the report itself warns that no cut-and-dried formula will work. However, Chapter VII gives an indication of the lines along which problems should be approached.

One of the most important findings of the investigation is set forth at the beginning of the chapter where it is stated that, by and large, there has been insufficient realization of the necessity for separate consideration of the merchandising and marketing problem for each segment of the market for a product. In other words, responsibilities within an organization have not been so allocated that the desired specialization and flexibility are secured.

Dr. Melvin T. Copeland of Harvard Graduate School of Business Administration, who prepared the report on merchandising cotton textiles

"Merchandising of Cotton Textiles: Methods and Organization" —the result of many months' work undertaken at the instance of the Textile Foundation.



There follows discussion of different methods of organization, specific concerns being analyzed and the advantages and disadvantages pointed out. The report lists five sets of circumstances under which the merchandising and selling jobs can apparently be combined successfully, but favors either complete separation of merchandising and selling or coordination of these functions in a senior officer with the merchandise manager free from sales supervision. The advantages of such set-ups are that the merchandise manager can do a real job of product planning, since he is not burdened with routine sales supervision, that the required degree of specialization and flexibility can be secured, and that the sales manager can devote his energies along strictly sales lines.

Following a discussion of certain merchandising functions that may be assigned to staff assistants, this chapter of the report makes an extensive analysis of the marketing methods of selling agencies and reaches the conclusion that they are trying to do a good job under impossible conditions. The position of the small mill, unable to set up its own selling organization, is set forth and the recommendation is made that mergers be put through (perhaps by selling agencies); the minimum size being based on the cost of competent man power and the maximum size dependent on the methods of internal control set up to secure flexibility. The general conclusion of this chapter is that an organization must be adjusted to the merchandising complications of the product.

Chapter VIII takes up the question of whether the industry would be profitable if it adopted generally the methods of merchandising that appear to be sound and that have been proven successful by certain concerns within the industry. After reviewing the statistical situation, and making comparisons with other industries, the report states that there are apparently only three ways to lessen the volume mania. They are: (a) voluntary cooperation; (b) cut-throat competition; (c) reduction of the number of organizations by forming larger companies capable of stopping some of the leaks that result from the non-integrated character of the industry. After setting down the pros and cons of each, the report states that the last offers the greatest possibilities.

The degree of integration to be desired is next taken up. The general conclusion reached on this subject is that there is considerable merit in including the converting function in a mill's operation. Whether or not a finishing plant also should be included in the set-up is a question that must be determined by the circumstances. Here as elsewhere, however, it is emphasized that unless such an integrated company make provisions in its organization to secure the same degree of merchandising specialization and flexibility as that enjoyed by individual firms it will not be successful. In conclusion, it is believed that the union of finance, production and marketing functions under one head, combined with a shift of viewpoint from production to merchandising, would better serve consumers and create more stable business units.

The detailed ground-work upon which the conclusions are based is contained in Chapters II to VI inclusive. These chapters take up the specific branches of the industry as follows: household products; style merchandise, including draperies; men's wear; grey goods; cotton yarn. In each case analysis is made of various types of organizations operating in these fields and organization charts given. In addition, indications are given of lines along which more aggressive merchandising would be helpful and good and bad practices are discussed. It is impossible to give the details covered within the scope of this article.

Drs. Copeland and Learned express their appreciation of the cooperation of the industry in making the study, and particularly the advisory committee that assisted them. The personnel of the committee is: Walter S. Brewster, chairman; Leavelle McCampbell, Robert T. Stevens, and William E. Winchester, Association of Cotton Textile Merchants; Harry L. Bailey and G. Edward Buxton, Cotton-Textile Institute; Fessenden S. Blanchard, National Association of Cotton Manufacturers; George S. Harris, American Cotton Manufacturers' Association; George Hussey, Textile Brokers' Association; Henry G. F. Lauten, Textile Fabrics Association; W. L. Pierce, National Association of Finishers of Cotton Fabrics. Special reference is made by the authors to the work of Mr. Blanchard, who served as secretary of the committee.

The complete report may be secured from the Division of Research, Harvard Business School, Cambridge Mass., for $1.50.

Federal Legislation

IS THEME-SONG OF A.C.M.A. CONVENTION AT PINEHURST

T. M. Marchant elected president of American Cotton Manufacturers Association

Thomas M. Marchant brings to the office of president of the American Cotton Manufacturers Association a distinguished heritage in cotton manufacturing. Born in Greenville County (S. C.), and spending his early years on a cotton farm, Tom Marchant came in contact with cotton manufacturing in his boyhood, as his father for many years was superintendent of the old Batesville Mfg. Co. The younger Marchant's first textile experience came in 1898 when he obtained a job in the office of the Victor Mill, Greer, S. C. He moved to Greenville in 1906, and for several years was purchasing agent for a group of South Carolina mills, including several plants that are now a part of the Victor-Monaghan Co.

In 1909 Mr. Marchant went to Union, S. C., to become treasurer of the Ottaray Mills, but returned to Greenville two years later as vice-president in the manufacturing department of the Monaghan Mills. He was elected treasurer of Victor-Monaghan Co., in 1920, and became both president and treasurer in June, 1923.

His devotion to the cause of better conditions in textiles was responsible for Mr. Marchant serving as president of The Cotton Manufacturers Association of South Carolina for three terms. He has been active in the work of the Cotton-Textile Institute, as a member of the executive committee, and for three years as vice-president. He was for some time chairman of the print cloth group of the Institute and has served the industry well in many other cooperative undertakings.

TWO or more manufacturers cannot gather together these days without discussing Federal legislation. The annual convention of the American Cotton Manufacturers Association at Pinehurst, N. C., April 28-29, proved to be no exception. Washington activities were the major theme in both the formal and informal discussions in the convention hall and lobby, respectively. They injected a note of seriousness into the conversation on the golf course. They did not mar the enjoyment which an unusually large number of members and guests derived from a weather-perfect week-end, but they imparted an exceptionally purposeful note to the proceedings. The impression prevailed that the association was meeting under more critical conditions than had ever surrounded a previous meeting.

Certainly, that keynote could not have been sounded more seriously than it was by B. B. Gossett in his presidential address, which is abstracted on the second page following. It was also the motif of the address of W. D. Anderson, president of the Bibb Mfg. Co., Macon, Ga., at the first session, even though he clothed his remarks with humor and informality.

Reporting on the activities of the legislative committee of the association, Mr. Anderson made Chairman W. J. Vereen the hero of the day. We have never heard a more glowing or more sincere tribute paid to a man. It soon became evident that Mr. Vereen's service, his energy, and his tact were so remarkable as to command immediate response not only from committee members, but from others as well.

As a result of this work, Mr. Anderson stated, the cotton textile industry is better known today in Washington, and is more respected there, than at any time in its history. He pointed out, however, that groups should not go to the National Capital merely in opposition to pending legislation, but should have a substitute to offer. As a case in point, he referred to the association's positive stand on the Smith bill.

He believes that cotton textile manufacturers are under a handicap because Washington does not know the status and needs of their industry. In the mind of the public, he said, ours is a backward industry. Some manufacturers are a little ashamed of it themselves. Nevertheless, the speaker averred, the textile industry has no occasion to be ashamed of its performance during the depression; in fact, it is the one industry which has stood up fairly well in the matter of unemployment.

Mr. Anderson challenged the criticism that this is a low-wage industry, pointing out that comparisons are made, unfairly, between unskilled workers in textile mills and skilled employees in other industries. He also refuted the charge that there is a child-labor problem in textile manufacture.

"We may admit failure to make money for ourselves," he concluded, "but I claim that during this severe depression we have served the situation with some credit, and that much of the criticism constantly leveled at the textile industry is without foundation in fact, and is very unjust."

The complete personnel of the legislative committee follows: William J. Vereen, chairman; A. F. McKissick and W. D. Anderson, vice-chairmen; Charles A. Cannon, S. M. Beattie, Herman Cone, Stuart W. Cramer, Norman E. Elsas, Allen Little, A. W. McClellan, R. R. West and Thomas M. Marchant.

The only guest speaker at the opening session, Professor A. S. Dewing, of Harvard University, an outstanding authority on banking and finance, discussed

certain fundamentals of sound commercial banking, but made no attempt to analyze specific legislation now being proposed for the American banking system. Professor Dewing outlined four major principles of commercial banking which he declared to be necessary and which should be accepted both in principle and in practice. These points, briefly, were:

(1) Banks should synchronize their loans so that maturities will coincide with the requirements of depositors. (2) Loans made by commercial banks should be self-liquidating, preferably secured by consumer goods, and certainly not made on capital goods which do not in themselves have the capacity for repaying the principal. (3) Commercial banks should not invest their surplus funds in bonds, for should they be forced to realize on them as a secondary reserve, the bond prices at that time are always extremely low. (4) Commercial bankers should stick to their business and not attempt to engage in investment banking or other affiliated activities.

Looking with disfavor upon governmental restrictions as the ultimate solution of our banking troubles, Professor Dewing declared, "You cannot legislate morality into the individual, you cannot legislate prosperity into the nation, you cannot legislate banking consciousness into the banker."

Speakers at the annual banquet included Gen. Manus McCloskey, commanding officer at Fort Bragg, and Judge John J. Parker, of the U.S. Circuit Court of Appeals. Honor-guests introduced by the toastmaster included:

Curtis Dall, son-in-law of President Roosevelt; L. W. Robert, Jr., Assistant Secretary of the Treasury; George A. Sloan, president of the Cotton-Textile Institute; Russell T. Fisher, secretary of the National Association of Cotton Manufacturers; Magruder Dent, president of the Association of Cotton Textile Merchants of New York; Fred A. Rakestraw, president of the Cotton Yarn Merchants Association; S. M. Beattie, president of the Cotton Manufacturers Association of South Carolina; Mrs. J. W. Cannon of North Carolina; Stuart W. Cramer, past president of the A.C.M.A., and T. M. Marchant, who was to be elected president the following day.

The executive business session Saturday morning was featured by the annual report of W. M. McLaurine, secretary and treasurer, and by the usual committee reports and election of officers. T. M. Marchant, president and treasurer, Victor-Monaghan Co., Greenville, S. C., was elected president of the association. It was announced that Donald Comer, who had served as first vice-president and was consequently in line for the presidency, had tendered his resignation because of the demands of his own business interests. W. D. Anderson, Sr., Macon, Ga., was elected first vice-president, and T. H. Webb, of Concord, N. C., was named second vice-president, at the business session. Mr. McLaurine was re-elected secretary and treasurer.

New members of the board of government were elected as follows: R. R. West, Danville Va.; R. E. Henry, Greenville, S. C.; Herman Cone, Greensboro, N. C.; J. H. Cheatham, Griffin, Ga.; S. M. Beattie, Piedmont, S. C.; Fuller E. Callaway, LaGrange, Ga., and Kemp P. Lewis, Durham, N. C.

W. D. Anderson, elected first vice-president of A.C.M.A.

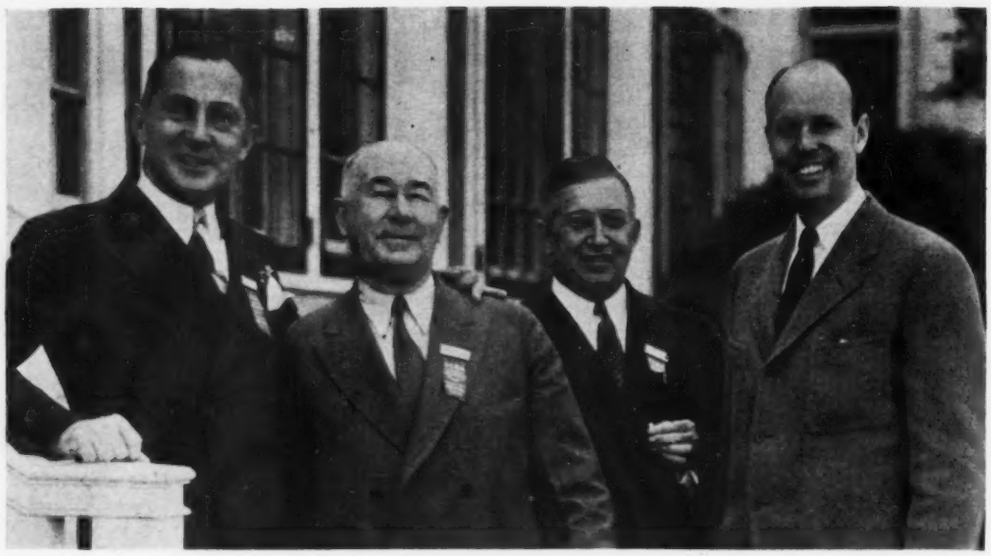
W. J. Vereen, chairman, A. C. M. A. Legislative committee

T. H. Webb elected second vice-president of A.C.M.A.

An increased appreciation of the value of cooperative activities was indicated in the report of Secretary McLaurine. During the last year more than 500,000 spindles were added in reclaim and new memberships, with several important additions made in recent weeks, and many other manufacturers were said to have expressed their willingness to rejoin as soon as conditions permit. His report consisted largely of a review of activities undertaken during the year and referred to the work of the special legislative committee in behalf of the Smith cotton pool plan, the Red Cross cotton bill, an adequate tariff on jute, and other matters of nation-wide interest. He commended southern mill executives for the adoption of sound cost methods, but stressed the need for an extension of modern cost-finding practice into other mills, and then a firm determination of all mills not to sell below their manufacturing costs.

S. Marshall Beattie, of Greenville, S. C., chairman of the cotton committee, reported on activities of the joint cotton arbitration board and on the results of the cotton conference in Washingon. He praised the valuable work done by Charles A. Cannon and A. W. Fisher, of Cannon Mills, in behalf of the industry, and urged all mill executives to keep in close touch with the biennial cotton conferences on standards.

W. S. Montgomery, Spartanburg, S. C., reported on the status of a committee on trade practice for the print-cloth group. It was hoped that a conference with a committee of the Cotton Textile Merchants Association in New York will be productive of uniform trade practices that will be more lenient toward the mills. Carl R. Harris, president of The Arkwrights, Inc., research organization affiliated with the Southern Textile



An informal group snapped between sessions at the A.C.M.A. Pinehurst Convention. Left to right: L. W. Robert, Jr. of Robert & Co., engineers, Atlanta, Ga., Assistant Secretary of Treasury; T. M. Marchant, newly elected president, A.C.M.A.; B. B. Gossett, retiring president; Curtis B. Dall, son-in-law of President Roosevelt, one of the guests of honor.

International News Photo

Association, asked for the continued support and co-operation of the A.C.M.A. Stuart W. Cramer, Sr., Cramerton, N. C., reported on the work of the Textile Foundation and the National Industrial Conference Board. He declared that no industry can keep abreast of the times unless it engages in scientific research, and stressed the need for more uniform standards of textile education in the technical and engineering schools.

Carl R. Cunningham, traffic manager, Atlanta, Ga., outlined various rate changes, and pointed to certain policies of the Interstate Commerce Commisssion which should be studied by textile manufacturers. He urged members to protest against recent action of the War Department in reducing barge rates on cotton from Memphis to New Orleans, inasmuch as the rate reduction will benefit foreign mills at expense of American.

Resolutions were passed unanimously asking the Department of Agriculture not to make any changes in the present white grade cotton standards; and protesting against further extension of cotton manufacturing in Federal penal institutions. It was pointed out that the Atlanta Penitentiary now manufactures numbered duck in quantities equivalent to 23.4% of the volume of such goods made by free mills. Among the resolutions of condolence was one extended to the family of the late Arthur H. Lowe, Fitchburg, Mass., who was the only man to become president of both the National Association of Cotton Manufacturers and the American Cotton Manufacturers Association.

B. B. Gossett Sounds Warning

Industry can put its own house in order . . . or it can expect a governmental housecleaning. These were the two alternatives held out by B. B. Gossett, retiring president of A.C.M.A., at the start of the convention.

With great solemnity, Mr. Gossett placed all the emphasis in his power upon this particular section of his address. Stating that he regarded it as the most urgent topic he had ever been called upon to discuss publicly, he said:

"I cannot over-emphasize the importance I attach to the subject. The very existence of our companies as individual enterprises depends upon the courage and the speed with which we approach it.

"No governmental agency forces us to over-produce. On the other hand, unless all signs fail, it is inevitable that the Government will soon adopt such measures as may be necessary to force us to put our house in order unless we voluntarily do so. Among other things, this will undoubtedly mean the adoption of uniform and shorter hours throughout the entire industry, the allocation of business to insure the proper balance between production and demand and perhaps even a minimum wage scale as well as many other practices which may prove dangerous and far-reaching.

"Gentlemen, the handwriting is on the wall. The hour has struck. Therefore, in the existing crisis, the textile industry more than ever before faces the positive need of sustained co-operation. Our problems, although great and numerous, can be solved if we will once resolve upon a determined, courageous and intelligent attack.

"Forget everything I have said today, if you will, but I beg of you, for your own salvation, to ponder long on the thought I have just expressed. It involves the most critical situation which has ever confronted you and me as textile manufacturers, and transcends all other matters in its demand for broad-gauged thinking and action."

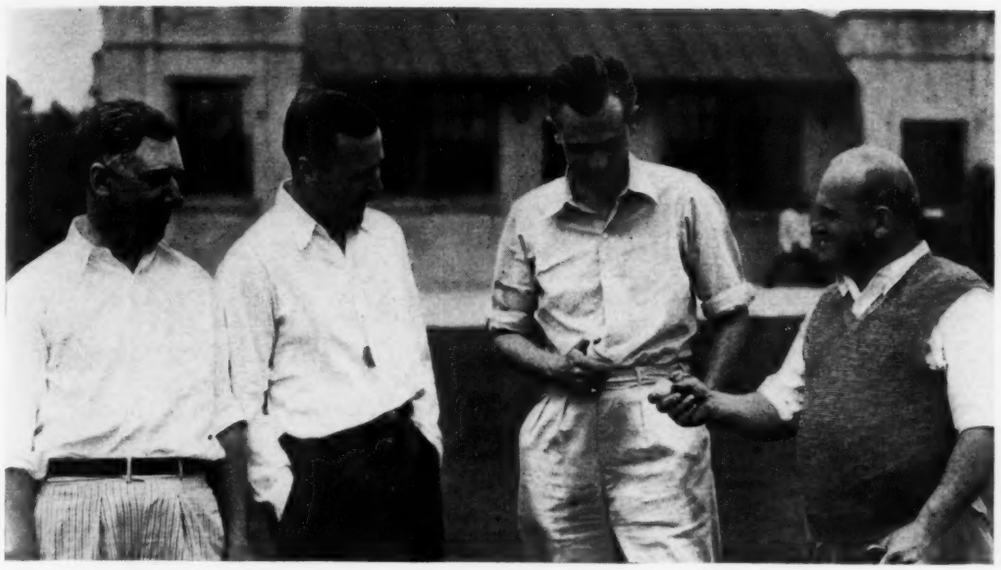
Other outstanding sections of Mr. Gossett's address follow:

"We started the year with a program consisting of three major parts:

"First, an intensive follow up of the campaign inaugurated in Mr. Callaway's administration to find new and increased uses for cotton. This campaign included the all-important matter of securing an adequate tariff on jute and its products. Most of you are familiar with the efforts we have made to bring this campaign to a successful conclusion. Unfortunately, our goal is not yet in sight, but we are encouraged to believe that our efforts will ultimately be rewarded.

"In this connection, we have also co-operated with the Cotton-Textile Institute in a campaign to increase the present uses of cotton and help develop new markets. Not for many years has the American public been so interested in value received for money spent. Not within the past century have there been such remarkable values in all kinds of cotton goods. Never before have cotton goods been so attractively styled and their place in fashion reached a position of such importance. Quite obviously this enviable position was not a spontaneous happening. It is the result of well-planned co-operative effort. Mills and converters have played their parts. Versatility of fabrics and stepped-up designing, styling and finishing represent the contribution of the processors to the popularity of cottons.

"The work of the Cotton-Textile Institute has been an equally important factor. Through its style shows, conducted in many quarters over a period of years, its fashion bulletins, its swatching service and similar promotional



Sam C. Lamport of Lamport Mfg. & Supply Co. shows his golf partners the ball with which he made a hole-in-one on the 13th hole at Pinehurst. Left to right: George M. Miller, Turner-Halsey Co.; Harry L. Bailey, Wellington Sears Co.; George A. Sloan, president, Cotton-Textile Institute; Sam C. Lamport.

International News Photo

activities, it has kept the merchant and the public 'cotton-minded.' . . .

"The second major part of our program had to do with the matter of improving our generally antiquated and unsound methods of merchandising and distribution; and the third part to the question of inaugurating an intensive campaign looking to the lowering of the cost of Government in all its branches. . . .

"Notwithstanding our many advantages, the industry as at present conducted is not prosperous. One of our great textile leaders once said: No industry can long survive without reasonable and legitimate profits. It is the life blood that must pulsate freely through the veins if strength is to be maintained and the demands of progress met. . . .

"It must be evident to all that there is something about our present system that is fundamentally wrong—something that is dissipating our energies and bleeding our plants to death. Some seem to feel that because we have the potential capacity for production in excess of normal consumption we should turn out every pound that we can produce, regardless of the consequences. If this is the case, it seems to me that we stand indicted before the world for a type of incompetence that will deserve its fate.

"But there are some who may say that we are not over-producing. They will point to the figures for the year 1932 which seemingly reveal a balanced production in relation to demand and yet they must admit that in spite of this the price movement of staple fabrics during the year was not satisfactory and constantly sinking lower. The truth is that considering the year *as a whole*, production was fairly well balanced to demand. Unfortunately, however, this does not take into account seasonal fluctuations. It does not take into account the imperative need of balancing *potential* production to demand, not mentioning the disposition of many mills to press *continuously* for an outlet for a tremendous excess yardage of merchandise, especially in quiet market periods when the trade is in no humor to buy. After all, it is this unbalanced adjustment between demand and volume of goods *offered* that is largely responsible for the tremendous shrinkage in manufacturing margins.

"The real unfortunate circumstance about these seasonal movements has been their influence upon prices. A study of the records shows conclusively that seasonal downward trends in spindle activity are accompanied by drastic price reductions, which are entirely dissociated from the price of raw cotton.

"At such periods prices fall to levels below the cost of production. Last summer, for instance, the average manufacturing margin for staple print cloths was less than 10c. a pound and narrow sheetings 6c. a pound. Obviously these margins were insufficient to meet labor cost, taxes, insurance, supplies, selling expenses and administrative overhead.

"When reviewing such a record, it would seem that mills do not fully realize that absence of demand at certain times of the year is a natural phenomenon and should not give rise to anxiety as to ultimate business improvement. . . .

"Fluctuations in raw cotton create in themselves a serious risk for our customers, as the adjustment of merchandise made from fabrics and yarns to such conditions is unavoidable. But the added problem of panicky price reductions, when, in response to natural conditions in the year-round flow of business, demand for goods declines, constitute a burden on our customers, and therefore on the mills, which the industry should forthwith take steps to correct. . . .

"It is obvious that in shaping our policies for the future, we must give greater attention to the matter of merchandising and distribution, make allowances for seasonal swings and adjust our operations accordingly. We must aim at *profitable* selling and place much less emphasis on the selling of volume, bearing in mind that a stabilized market offers the best incentive to volume demand. The violence of seasonal changes must be kept constantly in mind and production adjustments should *precede* rather than follow the customary slump in demand. . . .

"We have been hearing lately a good deal about frozen assets but not so much about frozen minds. Unfortunately, our minds appear to be frozen in the groove of over-production. Let us therefore thaw out our minds and put aside prejudices, fear and preconceived ideas; let us put aside old animosities and misunderstandings with a firm resolve to work together in the future closely and harmoniously for our common good.

"The worst of the depression is behind us. We have had a long and lingering illness but the crisis has been passed. It was passed when the banks re-opened following the banking moratorium of March 6. We are now on the certain road to recovery. Convalescence is necessarily going to be slow and trying. The attitude of the patient is going to mean everything. Above all things, let us keep in mind that conditions today are different from anything hitherto experienced in our economic history. We have been fighting hard, but this is a time when we might well re-dedicate ourselves to the task of launching a vigorous offensive with the determination of leading the country out of this terrible slump. We have done it in the past. We can do it again.

"But we must not be motivated by selfishness. Our motives must be clear and beyond question. Our desire must be to serve our State and Nation faithfully and well. In so doing, we shall be serving our industry best. We must put aside individualism; we must put aside unenlightened selfishness and stand together as one in a great irresistible push with stability and prosperity for all as our goal. Our task calls for all—everything—each of us may have of fortitude, efficiency and friendliness."

Advice to Weave Room

FOR IMPROVING OPERATION OF COTTON LOOMS

By Milton Meek

◆ *In this article, reviewing the many causes for unsatisfactory loom operation, Mr. Meek suggests methods of weaving warps which have been improperly sized, avoiding trouble from defective filling, and insuring that the drawing-in is satisfactory. In a sequel to this article, to appear in an early issue, he will offer numerous suggestions of interest to the loomfixer.*

THE loom is often regarded as the most abused machine in the whole process of cotton manufacture. Unquestionably it is often called upon to perform tasks for which it was never built, and is sometimes expected to give good service when it has been operating from 20 to 30 years. Considered obsolete in one plant, it may be resold and put into operation many times before it reaches the scrap heap. Such a procedure results in high maintenance charges, loss of production, and labor costs greatly in excess of those found in a modernized weave room.

With the view of offering observations to the mill man, it is proposed to discuss some of the lesser-known difficulties found in the average cotton weave room, in connection with warp and filling defects, harnesses and reeds, and methods employed in loomfixing.

Warp Defects

A defect on which much valuable time is wasted is the attempt to weave a cloth heavy in construction, the warp yarn of which has been made from low-grade cotton or waste. The strain on the warp yarn is too great, resulting in constant end breakage, and every possible remedy may be attempted without success. A new set of warps has to be made from a more suitable staple length of cotton.

Under- or over-sized yarn is responsible for a great deal of trouble in the weave room which might easily be avoided by reasonable precautions on the part of the slasher. Too much size results in the ends matting behind the drop wires. The yarn is often brittle, and ends break before they will separate from each other. The drop wires are crowded and are therefore prevented from falling the required distance when ends break; this permits the loom to continue running, and floats are made. The appearance of the cloth is often impaired by evident streaks from over-sizing. To minimize the difficulties in weaving such warps, a flat rod inserted between the whip roll and the drop wires to divide the ends is found advantageous. Given a rocking motion through the movement of the lay, the rod will prove of even greater assistance.

The weaving of under-sized warps, particularly if the weave employs five harnesses or more, is a difficult problem. The ends chafe and small balls of lint form on two ends or more, causing end breakage. This may take place behind the drop wires or between the reed and the harnesses. If the latter is the case, much more difficulty is experienced. The broken end is often held in the ball of lint attached to one or more ends still unbroken, thus preventing the drop wire from falling. This usually results in a great many ends being broken before the loom stops. A warp badly under-sized often necessitates that a spare weaver be called upon to run the loom.

If chafing occurs behind the drop wires, then a damp cloth placed across the warp between the whip roll and the drop wires may be of some assistance. When the trouble is between the reed and the harnesses, a strip of flannel fastened to the back of the lay sufficiently low to ride on the yarn will prevent the chafing to some extent. Careful weighting is also of great importance. Instructions should be given to weavers to report under- or over-sized warps to the overseer. The slasher responsible should be made familiar with the difficulties of weaving such warps, and a record should be kept by the slashers of the requisite size required for individual styles.

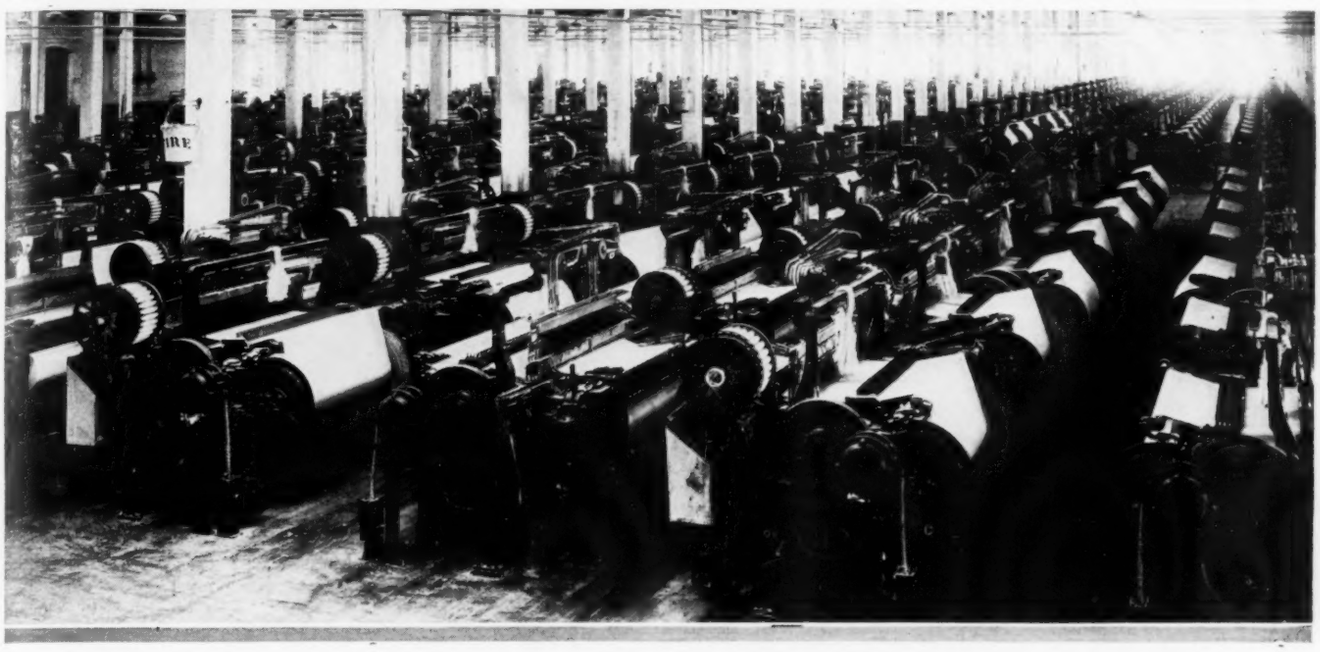
"Piling" yarn on the beam is a bad practice. Warps, after being drawn in, are sometimes left on the floor for several days and perhaps moved from one position to another. The ends come in contact with the floor, becoming broken and very dirty as a result. Much extra time is required in starting up a new warp found in this condition. Racks of many types capable of holding beams are available.

The fault of ends running out during the process of weaving can be traced to either the beamer or the slasher. Should this be a frequent happening, the matter should be investigated and remedied. In some cases ends are taken from the sides to replace those missing, and crossing ends is a very undesirable practice in weaving. Where this is not possible, the missing ends are substituted from bobbins, the ends being approximately the same counts. These yarns are sometimes difficult to obtain, causing the weaver additional work.

Filling Defects

Defects in filling may be the result of a variety of causes, many of which can be properly remedied only in the earlier stages of processing. However, when bad filling comes to the weave room, an effort is made to use as much of it as possible. This procedure is economical only so long as the spinning overseer is notified and takes the necessary steps to have the basic trouble eliminated.

Filling which is wound loosely on the bobbin has a tendency to slough off. This chokes the eye of the shuttle, and the filling breaks. It is often possible to lessen the power of the pick so that the check needs to



be less forceful, and this prevents the sloughing off to a large extent.

Excessive twist or dryness will cause kinky filling. Some method of adding moisture, such as spreading a damp cloth over the filling or providing adequate humidity in the weave room, will often overcome this difficulty. The more usual remedy is to give additional "drag" to the filling as it leaves the shuttle by inserting brushes, but this practice is not always advisable.

The fault of insufficient filling at the base of the bobbin to enable the feeler motion to effect a change before the filling runs out is perhaps the most serious of filling defects, except inferior yarn quality. To explain this, it is necessary to trace the fault to the spinning room. There a set is made without a sufficient "bunch" being run on the bottom of the bobbin. The set is then put with other bobbins of the same count not having this defect. The result of this is that when the filling reaches the loom there may be 40% of the bobbins with bad "bunches," while the remainder are all right. With certain types of feeler motions, it is impossible to overcome the defect, and the readjustment of the feeler motion is futile. The loom stops frequently, and the weaver becomes impatient after having told the fixer, perhaps three or four times, of the same defect. It is impossible to imagine that the spinning overseer is not cognizant of the difficulties encountered because of this defect, but the legitimate complaint from the weave room should be made on every occasion.

Mixing filling of different twists in any large quantity usually occurs in the spinning room. Should filling which varies in count be woven into the cloth, the result is obvious. The filling boy will sometimes mix the filling when serving it to the weaver. It is often difficult to discover who is responsible. Some system of marking different yarn numbers with various colors is essential, and a legible standard should be maintained. Each operative, both in the spinning and weaving departments, who handles filling should have drilled into him an understanding of the consequences arising from this defect.

A bobbin of filling will accidentally fall on the floor. This happens frequently. If it is left there over a period of time, it is not only a hazard, but becomes dirty. Each weave-room operative, no matter what his or her job is, should be instructed to keep the floor as clean as possible.

Harnesses and Reeds

Proper cooperation between the drawing-in department and the weave room is essential. The fixer often experiences difficulties in starting up a new warp, owing to insufficient length of the ends needed to tie up the warp. To obtain the necessary length required for this purpose, the drop wires and harnesses have to be worked back, sometimes as much as 5 or 6 in. Where there is an abundance of slack ends, they become entangled, many of them being broken in the process. This defect could easily be overcome if the person drawing the warp in would brush out the ends to an equal length and allow them to be 8 or 10 in. from the reed for the purpose of the tie-up.

Where the knotting machine is used, this difficulty is not met with. Like most automatic devices, it will produce satisfactory work if fed correctly. In this case it is the duty of the fixer to cooperate. Before taking out the harness of a warp which is finished, he should observe that no ends are broken or missing, leaving an adequate length of yarn for the purpose of the knotting-machine operation.

In the larger mills it is the usual practice to appoint a man responsible for the care of the harnesses and reeds. As each set of harnesses comes to him, it is his duty to replace broken or damaged hooks, to examine the reed for defects, and to clean and overhaul the harnesses generally. The support at the end of the reed will sometimes become loose, and unless this receives immediate attention it will fall out and the end of the reed will be damaged beyond repair. When steel heddles and reeds have to be stored away for future use, they should be rubbed over lightly with oil to combat the corrosion caused by the humidity in the atmosphere. Preventing the return of defective equipment to use again at this stage means hours of labor saved in the weave room, and a conscientious man in this position is a real asset to the company.

Worsted Twist Defects . . .

THEIR CORRECTION IN KNITTING YARNS

By George Hendricks

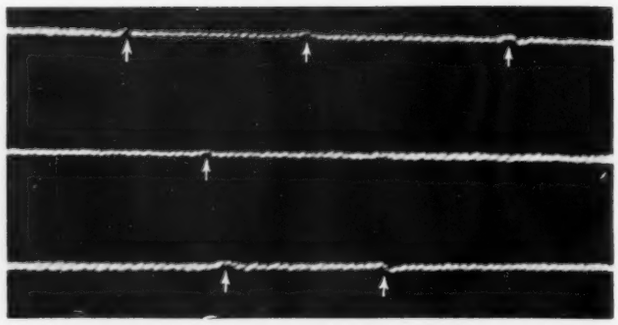
THE amount and distribution of twist in wool yarns is an attractive study, but rarely can one find material for definite conclusions. The same results in yarn and fabric may be obtained by different methods and the use of dissimilar twists; and, on the other hand, discrepancies and differences arise in lots which have been processed under identical conditions from perfect wools. In this connection there are wools made into yarns which are correct only when specific amounts of twist are used; and there are other wools which will allow any reasonable amount of twist to be imposed, hard or soft, and be perfect in yarn appearance and fabric form.

There are many ways of inserting twist in yarns, depending on the type of spindle used. The best method is considered to be the mule way. Each revolution of the spindle inserts one turn of twist. The only drawback is the necessary cessation of the twisting in order that the spindle may wind on each stretch of yarn spun. In flyer spinning, one turn of twist is given to the yarn for each revolution of the spindle. In ring and cap spinning the same rule applies, but one turn of twist is lost for each ring of yarn placed on the bobbin. Cap- and ring-spun yarns are defective in twist to this amount; but if the yarn is unwound from these bobbins or spools over the nose, this twist defect is made good, one turn of twist being added to the yarn for each ring of yarn unwound. Flyer-spun yarn, correctly twisted so far as principle is concerned, if unwound over the nose of the bobbins or spools, becomes imperfect in twist, one turn of twist being added for each ring of yarn unwound. It must be remembered, in this connection, that the length of yarn constituting a ring varies with the circumference of the yarn package.

Twist defects due to imperfect winding-on methods in spinning occasionally give rise to defects in the cloth. When wools are spun to their count limit, these defects are evidenced by increased yarn breakages during the spinning at the beginning of a doff, when most twist is lost. For knitting-yarn spinning, flyer frames are preferred, because of their twist regularity. Twist defects occurring in yarn are often difficult to trace and correct. The yarn is almost perfect; but here and there, in places representing less than 5% of the whole, yarn or fabric defects appear. Some of them may be caused by irregularities due to faulty winding-on methods.

Twist per Inch in Yarns

No. of Test	Perfect Yarn		Defective Yarn			
			Imperfect Places		Perfect Places	
	Single	Plied	Single	Plied	Single	Plied
1.	8.8	9.2	8.0	6.2	5.0	7.6
2.	6.4	7.0	6.4	10.6	4.6	7.6
3.	7.2	7.0	6.0	8.8	4.4	7.4
4.	7.8	8.2	5.8	8.6	4.2	7.4
5.	7.8	8.4	6.2	9.8	5.0	7.6
Aveage	7.6	8.0	6.5	9.2	4.6	7.5



Defects in worsted yarn analyzed

A firm of spinners recently experienced trouble in making crochet yarns from good botany wools spun to two-ply 9s. The yarns appeared right in the single and plied states; but when returned from the dyer, the plied yarn ran into small curls, like the beginning of a kink or snarl. In the hank they could be readily seen and gave a cheapening effect to the lot. When sold for knitting, defects developed and complaints were made regarding these defective places. A photograph of the defects is shown. This yarn, along with a sample of perfect yarn made by the same firm, was submitted to the writer for testing and for advice with a view to their elimination.

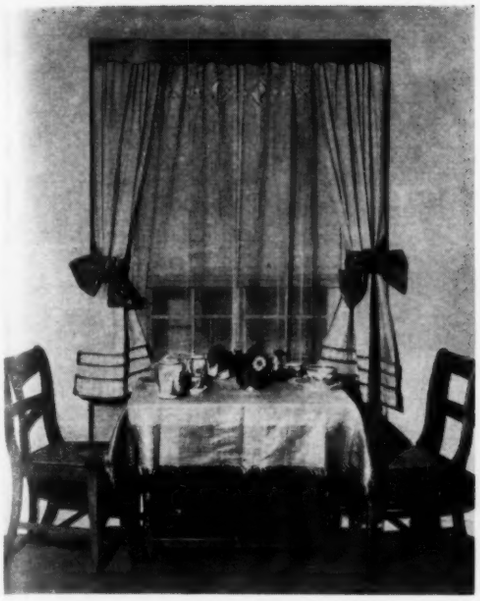
Defects of this nature always demand careful attention. One could make a list of possible causes, in addition to those already dealt with as frame difficulties, such as the following: (1) Bad blending in the drawing. (2) Rollers with loosened covering in drawing and spinning. (3) Irregularly spun yarn. (4) Yarn spun from double roving.

Twist tests were first conducted with a view to locating the trouble. An ordinary twist tester was employed for this purpose, and tests on 1-in. lengths were conducted, the defect being a small one and confined to short lengths. The results are given in the table.

There were two outstanding facts noticeable in these results: (1) The twist in the perfect yarn was comparatively uniform and the twists in the single and plied yarns were almost alike—7.6 and 8.0. (2) The twist at the imperfect places in the defective yarn was much higher than that in the perfect places of the same yarn, and the single and plied yarns were poorly balanced.

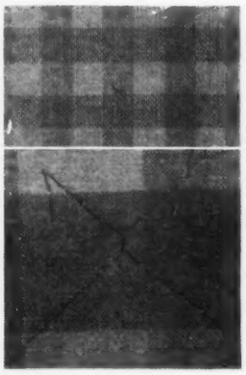
These results suggested two remedies: (1) To arrange balanced twist when making these yarns. (2) To pay more attention to the making of perfectly even yarns, as it is well known that in uneven yarns the twist runs to the thinnest places.

These recommendations were submitted to the spinner, who reported later that he had overcome the trouble by increasing the spinning twist $1\frac{1}{2}$ turns per inch and decreasing the twisting twist $\frac{1}{2}$ turn per inch.



New Draperies

OFFER OUTLETS FOR COTTON DRESS GOODS



Gingham revived as attractive drapery—little checks and big checks in combination, the big check borders being quilted.

NEW uses must be preceded by new ideas. A case in point is the development of five designs for draperies offering new outlets for cotton dress goods. Four of these designs, with their applications, are shown on this page.

Each is a wholly original design specially developed for the Cotton-Textile Institute by its decorator-consultant, Miss Freda Diamond. Each was allocated to and accepted by a leading drapery manufacturer for regular production at popular prices, and was offered to stores for delivery prior to May 1.

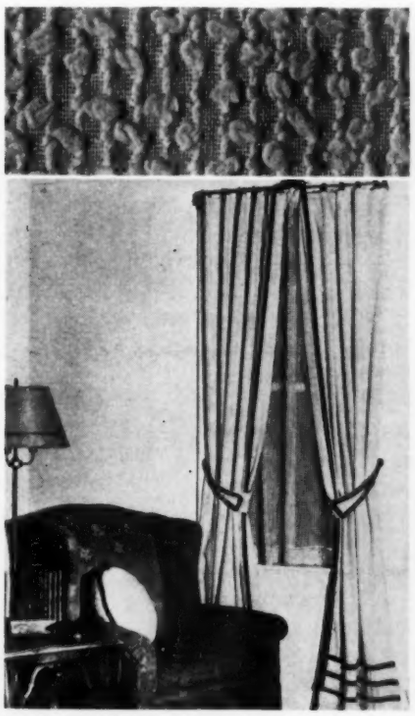
Commenting on trends in this field, Miss Diamond says:

"In their present growing popularity for home decoration, cottons have come a long way since 'crinoline days.' Drapery fabrics of the conventional type are still with us and probably always will continue to have a considerable share of public acceptance. Many other fabrics, however, not specifically designed for curtains and draperies are now coming into increasing favor for such purposes. Many of the new cotton dress materials, particularly, lend themselves most readily to such utilization.

"In step with the fashion importance of cotton apparel, cotton stripes, cotton plaids, gingham checks, woven diagonal patterns and a wide variety of intriguing novelties bring an interesting new note into the American home. The unusual textures, weaves, and patterns of cotton fabrics are readily adaptable to simple or sophisticated interiors, and they make themselves 'at home' where 'period' must prevail. Even rich brocades or delicate damasks can be replaced today with some of the new cottons.

"Decorative trends and color schemes all favor cotton fabrics. White in contrast with vivid color is the most popular motif. White and emerald green, white and bright blue, white and bright clear reds and yellows are much employed. It is precisely these color combinations that naturally predominate in cotton dress goods for summer."

White spongy fabric with smart stripes of red and blue lend a classic air to this scene; tassel trim on valence.



New rubbed cottons in sand color appropriate for decorating a man's room; cotton cord trimmed.

Garden-party dimities reappear as delicate curtains in summer bed room; Bow tie-backs have pompom trimmings.

Imitation Backed Cloths

AND USE OF WADDING THREADS WITH BOTH WARP AND FILLING BACKING

By R. A. C. Scott

IN PREVIOUS articles the main principles involved in the use of yarns in the structure of the ordinary backed cloths employing three series of threads have been fully explained.* In a brief study of the imitation backed constructions we find that cloths resembling very closely the ordinary backed types can be produced by special rearrangement of the single-cloth weave. In this system, however, each thread interweaves in a regular manner on both sides of the cloth, having a fine surface appearance with a soft and pliable handle, while equal friction and tension are distributed during the weaving process, making more than one beam unnecessary.

Due to the fact that each end and pick is interwoven on both sides of the cloth, inferior quality of yarn cannot be introduced on the back, nor can colors be so effectively applied as in true backed cloths. This principle of construction, however, is very adaptable for piece-dyed fabrics and the designs may be made in imitation either of the one-and-one or the two-and-one order of backing.

Imitations of Filling Back

The method of constructing imitation filling-backed designs is illustrated at Figs. 39, 39a and 39b, in all of which the marks, as before, indicate filling up. In rearranging twill weaves in imitation of the one-and-one order of filling backing, the repeat of the imitation weave is made one thread less or one thread more than twice the number of threads in the repeat of the twill. Similarly, in the two-and-one order of filling backing the repeat is made one thread less or more than three times the number of threads in the repeat of the twill. Thus in Fig. 39 the 2/2 twill weave is given with the corresponding imitations based on this principle of Figs. 39a and 39b respectively. The former, which repeats on seven ends and picks, produces an effect between a two-and-two and a two-and-one twill; whereas the latter, which repeats on nine ends and picks produces an effect between a two-and-two and a three-and-two twill.

The method of construction is simply a case of inserting the marks of the original twill on alternate picks or spaces, as at Figs. 39a and 39b; but, owing to the odd number of picks in repeat, the weave marks will be distributed first on the odd, then on the even spaces. In this way the odd and even picks form separate twill lines behind which the even and odd picks respectively float. These long filling floats on the underside give the appearance of a sateen or loose back weave, and produce a very good imitation of a properly constructed filling-backed structure.

The setting of these cloths requires approximately twice as many picks as there are ends per unit space. Therefore, a suitable construction for weave 39b using 2/40s worsted warp and filling would be 60 ends and 120 picks. It should be borne in mind, however, that the ends and picks will vary in proportion to the degree of firmness of the weave employed—the looser weaves requiring finer setting, and vice versa.

At Figs. 40a and 40b the 2/2 hopsack or basket weave (Fig. 40) is illustrated on seven ends and fourteen picks and on nine ends and eighteen picks respectively.

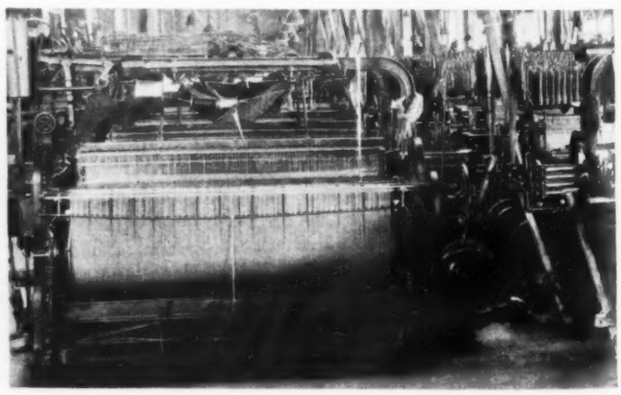
In constructing imitation designs other than twill formations, a series of floats of the original weave is inserted on the odd spaces; then a second series is run in on the even spaces, the distance between each series being similar to the original weave spacing after the picks are beaten close together.

At Fig. 41a the fancy diagonal indicated at Fig. 41 is illustrated employing 33 ends and picks in one repeat. The method of construction in this case is slightly modified from that followed in simple twill formations. In order to prevent excessive floats on the underside of the cloth, alternate twills start on the odd and even spaces, as indicated by the dark and light shaded squares. In this way a very good imitation of the single weave is obtained on the face, while at the same time abnormally long floats on the back are obviated.

The two-and-one order of filling backing for the 2/2 twill on eleven ends and picks is illustrated at Fig. 42. By following the rule of three times the ends of weave plus one, another imitation could be made on thirteen ends and picks, which of course would give a looser weave construction.

Fig. 43a illustrates the arrangement of the 3/2 weave move one (Fig. 43) in imitation of the two-and-one order of filling backing, which repeats on eight picks and sixteen ends.

In cases where the design imitated repeats on an odd



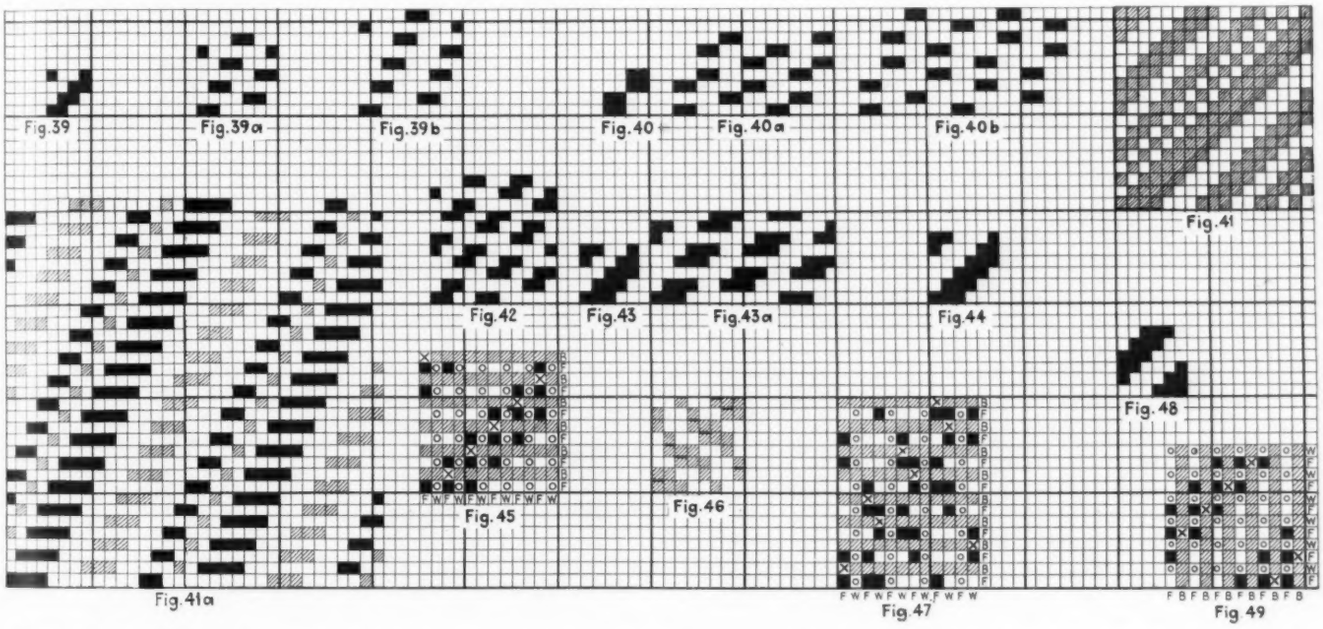
*Previous articles of Mr. Scott's series on designing backed, double, and treble cloths appeared in the issues of June, August, and September, 1932; and February, 1933.

number of threads, the number of ends in one repeat is twice that of the picks.

Imitation Warp Back

The same principle in constructing imitation filling-backed cloths is employed in constructing warp-backed effects; so that if Figs. 39a, 39b, 40a, 40b, 41a, 42, and 43a be turned one-quarter around, and the marks be taken to indicate warp instead of filling, warp-backed imitations will be illustrated. Consequently it is hardly necessary to trouble the reader with further detail or illustrations.

In setting these cloths, however, the one-and-one imitation warp effects require about twice as many ends as picks per unit of space, but in the two-and-one styles the proportion of ends to picks should be about three to two. Suitable weaving particulars, therefore, for the one-and-one style, using 2/40s worsted warp and filling, would be the reverse of the filling-backed construction given—thus, 120 ends and 60 picks; and in the two-and-one style, 90 ends and 60 picks.



Backed Cloths and Wadding Threads

Cloths made with a wadding thread—i.e., introducing a cheap thick yarn between the face and back (with neither of which is it usually interwoven)—are really composed of two series of threads in both warp and filling. As in extra-filling or extra-warp cloths the chief reason for this wadding thread is the desire to increase the weight. In filling-backed cloths the wadding threads are introduced in the warp, and of course in warp-backed structures the wadding threads are introduced in the filling.

The system of construction for filling-backed and warp-wadded designs is fully illustrated at Figs. 44 to 47 inclusive, marks in all cases representing filling up. Fig. 44 is the three-and-three twill weave, and is used for the face of the design illustrated at Fig. 45.

A good method of procedure in constructing these designs is, first, to designate the face ends and picks by some distinguishing mark, *"F"* in this case, and then lightly to shade in the backing picks and wadding ends as indicated in Fig. 45. (This design is arranged one face pick, one backing pick, and one face end, one wadding end.) Following this, the face weave is inserted where the face ends and face picks intersect, as shown by the solid marks; while the backing filling stitches, represented by crosses, are inserted between face filling floats where the face ends intersect the backing picks. To complete the design, the wadding ends are depressed, as shown by circles on the face picks; while on the backing picks the wadding ends are left blank, so that they are raised and therefore lie between the face texture and the backing picks. It will be noted that all the wadding ends work alike, thereby requiring only one harness to operate them.

The well-known Mayo weave is illustrated at Fig. 46, which shows by means of black marks the best stitching points. This weave and stitching arrangement have been used in constructing the design at Fig. 47. In this case, however, the arrangement is two face ends to one wadding end, starting with one face, one wadding, and one face for reasons previously explained. The filling arrangement is one face pick to one backing pick. As in the previous example, the circles indicate the points where the wadding ends are depressed on the face picks.

Warp-backed, Filling-wadded Designs

The system of construction for warp-backed and filling-wadded designs is illustrated at Fig. 49, in which the weave marks indicate warp up. The same procedure is followed as outlined above, except that the arrangement is reversed, the filling being styled one face pick, one wadding pick, and the warp, one face end, one backing end.

The three-and-three twill is again used for the face design (Fig. 48), which has been inserted where the face ends and picks intersect, as shown by solid marks in Fig. 49. The crosses, which are placed between face warp floats, represent the backing warp stitches; while the circles in this instance indicate the points where the face ends are lifted on the wadding picks, whereas the backing ends are left down.

Additional examples and illustrations could be given in further explanation of this design and weave principle, but enough has been said to indicate the method of construction and its practical adaptation to cloth manufacture.

Domino Crepe

JOINS STYLE PARADE

By B. D. Blackman

THEY'RE all on style parade—sand crepe and its bedford-stripe, block, and perforated variations; acetate semi-roughs and acetate two-by-two's; prints—and now comes the domino!*

The domino was originally an all-silk fabric (Fig. 1). As such, it found a ready market in the higher-priced dress field. The volume converters saw in domino a cloth with an abundance of sales appeal. The cutter of the $3.75 garment viewed the fabric in a similar light. Both recognized a cloth of great character waiting for exploitation.

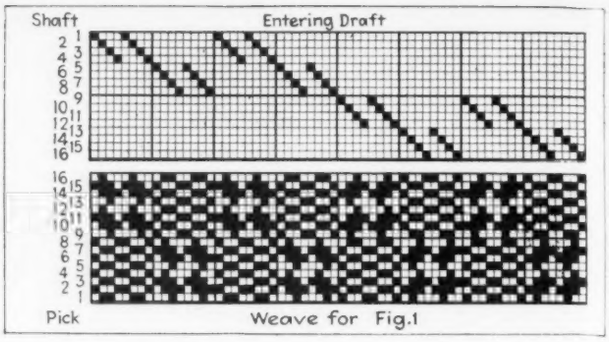
First attempts to simulate in rayon the character of the silk domino produced a cloth with too harsh a feel (Fig. 2). This was a great disappointment to both converters and cutters; but the lure of this material was too strong to permit its abandonment.

The logical evolution of the domino promotion was a fabric related to the silk domino in name only, bearing but a superficial resemblance to its predecessor. Actually the rayon construction resembles more closely than does the silk the domino blocks of the game room. An example is shown in Fig. 3.

The mistakes being made in the fabrication of domino are practically nil. Manufacturers have learned rapidly to check up at the vital points during processing. Bedford cord was truly a training ground for the manufacturer of domino, but we see occasionally that defect caused in entering which really is so simple to prevent. Fig. 4 shows a domino with wide ribs resulting from improper entering. Their occurrence could easily have been prevented if the enterer had followed the rules laid down in the "Bedford Cord" article published in the February issue of TEXTILE WORLD. The weaving foreman could easily have seen this defect if he had checked up prior to letting the weaver start production. He should always determine whether the warp threads are correctly distributed on each pick by putting an iron rod behind the reed to hold the ends taut and even, observing them pick by pick for one repeat.

Another domino defect consists of blocks made longer or shorter filling-ways than normal. This defect is largely due to the laxity of the manufacturer in impressing on the mind of the weaver the importance of the defect, its cause, and its remedy. The cause and remedy lie primarily in picking out. The rayon domino in Fig. 3, for example, repeats on sixteen picks; there are eight picks in each block and there are two repeats in each block of eight picks. This means that, in picking out, the weaver will come to an open pick twice in each block. To prevent the making of long or small blocks filling-ways he should carefully determine whether the block is on the first four or last four picks of that block.

An outline of a procedure that will eradicate this mistake follows: Let us assume that the weaver starts to pick out on pick No. 3. He should note from what half of the block he starts to pick out. He should then mark that same part of the block below the filling to be picked out. He may now pick out until he passes the float or other trouble, when he should make sure that he picks out to the second open pick. In restarting the loom, he should throw it over a few picks and then stop to make certain that the block is of the correct size.



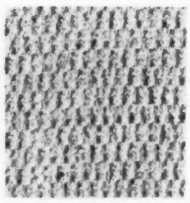
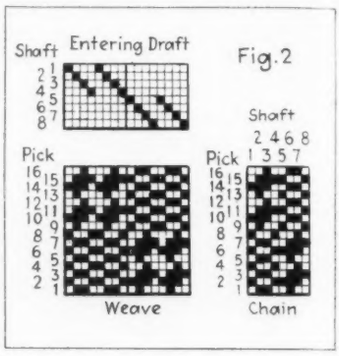


Fig. 1. Silk domino.



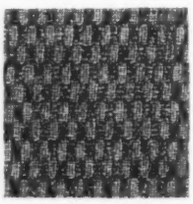
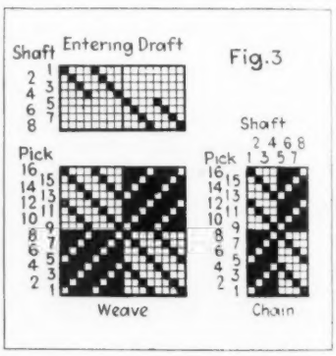


Fig. 2. First attempt to simulate silk domino in rayon. It proved too harsh to the touch.



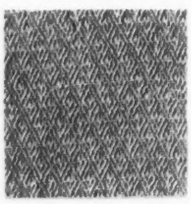


Fig. 3. Successful rayon domino. Warp 35/½/1, 100-den. 40-fil. viscose, 50/55 turns, 2 r. and 2 l. Filling: 72 picks of same yarn as warp. Sample by courtesy of McGill-Paris Fabrics Corp.

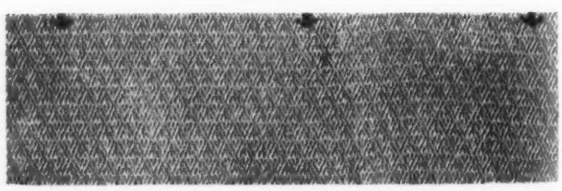


Fig. 4. Domino containing wide blocks caused by incorrect entering.

*Name originated by Haas Bros. Fabrics Corp., New York.

CORK-COVERED ROLLS; CONTROLLED-DRAFT DRAWING DISCUSSED BY

Eastern Carolina S.T.A.

CORK-COVERED ROLLS, long-draft spinning, and various improvements in card-room machinery were considered at the spring meeting of the Eastern Carolina Division of the Southern Textile Association, held at North Carolina State College, Raleigh, N. C., April 27. E. M. Holt, assistant manager, the Erwin Cotton Mills Co., West Durham, N. C., chairman of the division, presided.

Several members who had been running cork-covered spinning rolls for more than twelve months reported satisfactory results. Maximum life of cork cots, including three rebuffings at intervals of six to eight months, was said to be two and one-half to three years. The nearer the cork surface approaches the iron core, according to several members, the longer the period between rebuffings becomes. The cost per roll for rebuffing, exclusive of the cost of removing and replacing rolls on the spinning frame, was said to be about 1½c. It was found advisable to replace cork rolls either one complete side or one frame at a time, rather than to replace individual rolls.

Spinning results with cork rolls were found to compare favorably with leather-covered rolls. L. B. Crouch, overseer of spinning, Rosemary Mfg. Co., Roanoke Rapids, N. C., reported that a comparative test showed higher breaking strength and smaller number of ends down with cork covering than with sheepskin, running on 22s yarn. Cost of covering spinning rolls with leather, according to another member, was found to be 6c. per roll. An objection to cork was said to be the difficulty in changing yarn numbers from coarse to fine counts. Another objection was the increased number of ends down with cork-covered rolls on Monday mornings after the week-end. The longer the cork rolls run, the rougher the surface becomes, according to one member, and the more it is affected by humidity and temperature changes.

M. R. Harden, superintendent, the Erwin Cotton Mills Co., Plant No. 4, stated that it is important to have the cork cot fit the roller very snugly. He recommended that all rolls be gaged by a caliper to see that they are the same size—also that glue be applied to the roller and inside the cot as well; otherwise, in slipping on the cot the glue will slip off. He felt that calfskins were inclined to stretch more than sheepskins, having had some trouble with calfskin cots becoming loose. Another member pointed out that the technique of covering rolls with calfskin is somewhat different from that employed with sheepskin and that the roll coverer must understand this difference. The life of a roll properly covered with calfskin was said to be about three times that of sheepskin.

Various types of long-draft spinning were discussed. P. B. Parks, Jr., superintendent, the Erwin Cotton Mills Co., Plant No. 6, said that comparison of the two-belt system with the one-belt system showed the only significant difference to be the number of ends down caused by cleaning. It was found that more end breakage was caused from cleaning the one-belt system with the self-weighted small roller, as it is easier to clean the two-belt system without disturbing the spinning. His experiments had not been conducted long enough, however, to get sufficient experience on cleaning inside of the belts. The tests were made on 23s filling yarn, with the travelers changed about 10 or 15 hours in advance; the breaking strength was found to be about 80 lb. in both cases.

On the coarser numbers, 8s warp and 13s filling, the greatest trouble was said to be in the lint accumulation inside the aprons on the long-draft frames, particularly the bottom apron. It was found necessary to overhaul long-draft frames much more frequently than conventional-draft spinning. W. H. Miley, Jr., superintendent, the Erwin Cotton Mills Co., plant No. 5, said that his experience had been in favor of the single-apron system of long-draft.

Card-Room Machinery

Single-process picking was said to be entirely satisfactory on both white and colored work. It was pointed out that any make of pickers could be converted to single process, because the principle of synchronization is the same in every case, although there might be certain alterations of the drive in different types. The hook-up must have eveners to synchronize the process.

The five-roll system of "controlled-draft" drawing had been tried in one mill. There was a gain of about ½ lb. in breaking strength of yarn spun from sliver that had gone through the new drawing frames. The variation in yarn numbers was found to be 5% on the "controlled-draft" system, as compared with 6% on the regular drawing. It was pointed out in this case, however, that the stock going through the new machines was decidedly inferior in preparation to that which was processed on the regular drawing frames. The major advantage, according to Mr. Parks, seems to be in having sixteen ends combined into one end, together with the method of running continuously between doffs. The sliver-testing machine showed variation in finished drawing sliver of 18% on the five-roll system, as compared with 23% on regular drawing.

Cork-covered rolls in the card room were given warm praise. They were not recommended for speeders with hollow shells.

In the drawing process, a shorter draft with six doublings was said to give better results than with a greater number of doublings. Western cotton was said to dull card clothing much more readily than Carolina cotton, making it necessary to grind closer and keep the clothing as sharp as possible. Speeding up of the card flats, generally about 50%, was said to reduce the amount of neps in the sliver. One member found that a revolving clearer on speeders helps to prevent "eye-brows."

Budgeting by Overseer

ALLOWING FOR VARIABLE WOOLEN-MILL PRODUCTION

By Robert I. Martin

WHEN presented with a plan of budgeting control, the reaction of an overseer in a woolen mill is sometimes that he doesn't have time to bother with it and that it "might be applied in some other department, but it won't work in my case." A remark such as this betrays the fact that the overseer does not understand the fundamentals of a real budget. If he thinks at all about the expenses of his department, he must make some kind of comparison, however crude the standard may be. Actually, then, he is operating on a budget. All that a budgetary system of control aims to do is to establish trustworthy standards.

It is difficult to conceive of a consideration of manufacturing costs for control purposes without a comparison with a common base. A single figure is meaningless. For example, to be told that the weaving cost for a given week is $1,175 is not enlightening. Nor does it help much to learn that $750 is direct labor and $425 indirect. If many styles are in process, a cost per yard is still not satisfactory. A cost per pick would make a good comparison of present with past costs; but, unless pick counters are a part of the equipment of the looms, it would not be practical in many cases to make the necessary computations.

The next best, and probably the most adaptable, unit is the loom-hour or machine-hour. It is true that the operating efficiency may vary by styles in the case of weaving and that any wide variation should be taken into consideration; but for most departments the variation would not be a factor, because machine breakage, waiting for materials, and the like, would not be considered a part of operating time. Once a base unit is established, to maintain the lowest previous cost becomes the goal of each department head.

It should be mentioned at this point that piece-work wage payment is in itself a method of controlling direct-labor cost. This plan provides that the employee take all gains or losses from any change in his production. When it is not practical to use a piece-wage or, what is more frequently the case, when a time-study man is not available, a schedule or budget of direct labor may be devised with the same purpose in view.

The first step is to determine a standard performance

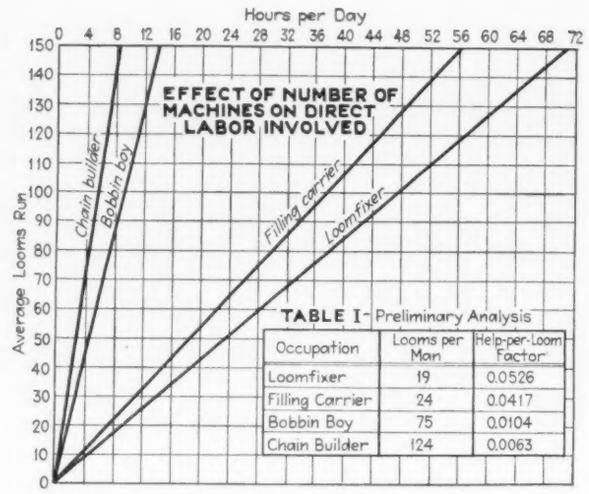

Hours per Day
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72
Average Looms Run
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
EFFECT OF NUMBER OF MACHINES ON DIRECT LABOR INVOLVED
Chain builder
Bobbin boy
Filling carrier
Loomfixer

TABLE I—Preliminary Analysis

Occupation	Looms per Man	Help-per-Loom Factor
Loomfixer	19	0.0526
Filling Carrier	24	0.0417
Bobbin Boy	75	0.0104
Chain Builder	124	0.0063

for each job on the basis of past experience or knowledge of the job. The overseer is in the best position to make such estimates, but in so doing he should make each a reasonable goal at which to aim. In the fact that the schedule is based upon past experience lies its greatest weakness. Another is the fact that to be successful it must be followed conscientiously from day to day if the scale of production varies. While the procedure may be followed for any department, let us, for illustration, apply it to the example of the weave room referred to.

Table I shows the preliminary analysis, in which it was arbitrarily decided that loomfixers should take care of 19 92-in. looms; filling carriers, 24; bobbin boys, 75; and chain builders, 124. These figures having been taken as a basis, the accompanying chart was drawn up for determining the approximate number of hours per day that would be required for each occupation when a given number of looms was to be run. The purpose of this chart was to permit the overseer to determine in advance the direct labor required and schedule it accordingly. This having been done, it remained to measure the results in somewhat the manner shown in Table II.

This procedure for the budgetary control of an individual department has two important points in its favor: (1) It functions at the source of the labor expense. (2) It provides information that is sufficiently fresh to be useful for the control of this expense.

Actually, what we have for sale is not suitings, or blankets, or carpets, but hours of productive labor. And in these days of small profit margins, with the rate of production varying constantly as a result of hand-to-mouth buying, it becomes more important than ever that manufacturing costs be controlled from day to day. One good method is to have this done in each department for the close supervision of the production executive.

TABLE II—Detail of Weaving Expense

Week Ending	No. Looms Oper.	Fixers $0.60 per Hr. Hrs. Spent	Fixers $0.60 per Hr. Hrs. Allow.	Fixers $0.60 per Hr. Dif.	Fixers $0.60 per Hr. Gain or Loss $	Fill. Carry. $0.30 per Hr. Hrs. Spent	Fill. Carry. $0.30 per Hr. Hrs. Allow.	Fill. Carry. $0.30 per Hr. Dif.	Fill. Carry. $0.30 per Hr. Gain or Loss $	Bobbins $0.25 per Hr. Hrs. Spent	Bobbins $0.25 per Hr. Hrs. Allow.	Bobbins $0.25 per Hr. Dif.	Bobbins $0.25 per Hr. Gain or Loss $	Chain Build. $0.35 per Hr. Hrs. Spent	Chain Build. $0.35 per Hr. Hrs. Allow.	Chain Build. $0.35 per Hr. Dif.	Chain Build. $0.35 per Hr. Gain or Loss $	Total Gain or Loss $
Oct. 15	79.2	244⅜	198	46⅜	—27.90	155	159	4	+ 1.20	86⅜	40	46⅜	—11.63	65⅜	24	41⅜	—14.47	—52.80
22	148.2	413	375	38	—22.80	320	286	34	—10.20	128	75	53	—13.50	68	44⅛	23⅜	— 8.22	—54.72
29	119.3	389⅜	302	87⅜	—52.50	235	240	5	+1.50	87	58⅜	28⅜	— 7.13	50	36⅜	13⅜	— 4.73	—62.86
Nov. 5	95.6	321	242	79	—47.40	209	192	17	— 5.10	95	48	47	—11.75	50	29	21	— 7.35	—71.60
12	73.1	225	184	41	—24.60	135	146	11	+ 3.30	45	36	9	— 2.25	45	22	23	— 8.05	—31.60

Typical installation for extracting surplus soaking solution from rayon skeins.

Conditioning Rayon Crepe

IS IMPORTANT THROWING OPERATION

◆ *To improve the running qualities of rayon which is to be given a crepe twist, the skeins should be treated with a lubricating and binding solution which will impart a suitable flexible coating to the filaments. The procedure for conditioning rayon previous to twisting, which is described in the following article, is based on information contained in a bulletin issued recently by the Technical Department, Quaker Chemical Products Corp., Conshohoken, Pa.*

DUE to its low elasticity, rayon does not withstand the high speeds in twisting which ordinarily are employed for silk. However, twisting of 50- to 55-turn crepe can be carried out at speeds of 8,500 to 9,500 r.p.m. if the skeins are treated first with soaking materials which form a flexible film on the yarn. This film should stretch with the rayon without cracking. To obtain the best results in conditioning rayon, it is advisable to use two materials—one for imparting adhesiveness; and the other for increasing weight and adding softness and lubricity.

For imparting adhesiveness, various gums or gelatins can be employed successfully, a suitable, high-grade, soluble gelatin being particularly adapted for this work. For imparting the desired softness and lubricity, a properly formulated soaking oil is satisfactory.

The method of applying the conditioning material to rayon which is to be thrown into 50- to 55-turn crepe is as follows: First, 3½ lb. of the gelatin is mixed with 5 gal. of cold water, stirred until it is thoroughly distributed, then heated with live steam to 60° F., and added to the general soaking tank. Next 14½ lb. of the soaking oil is mixed with 10 gal. of water at room temperature, agitated, and added to the general soaking tank. Water is now run in to bring the total mixture up to 50 gal. This mixture is heated to 130° F., and fugitive tints to identify right- or left-hand twists are added. A 50-gal. solution will conveniently soak 110 lb., or one-half case, of rayon.

The rayon is removed from the packages, and the skeins opened so that the folded twist as packed is free and receptive. If possible, the rayon should be placed in silk-soaking nets which hold 5 lb. of skeins; in the absence of these nets, cheesecloth wide enough in which to wrap 2 lb. of rayon can be employed. The nets or bundles are put into soaking tank one by one and pushed downward gently with a wooden paddle until immersed. Soaking is carried out at 130° F. for 20 min.

At the end of this period the nets or bundles are taken out of the bath, and the skeins are removed from the nets and placed lengthwise in an extractor. The walls of the extractor should be lined with cloth to prevent suction holes from bruising the filaments. The yarn is extracted at approximately 800 r.p.m. for 4 min. The extracted solution should be collected as it comes out of the exhaust and pumped back to original soaking tank. After extraction, the skeins are well shaken out by hand and hung straight on round poles so they will dry straight. A space of about ¼ in. should be left between each skein. Drying can be conducted at room temperature; or if a dryer is used, a temperature higher than 160° F. should be avoided, as high temperatures may cause discoloration and harshness. If possible, the drying time should be so regulated as to leave approximately 11% of moisture in the skeins.

In backwinding, the procedure recommended is to shake out the skeins on wooden opener arms, hang on swifts, and backwind on spools. All skeins which are awaiting their turn for winding should be kept either on sorting tables or hanging on poles. When cutting strings, it is advisable to use snub-nosed scissors to prevent accidental cutting of filaments. After the rayon has been wound on the steaming spools, steaming should be applied in three 10-min. or two 15-min. shifts to set the twist before quilling.

When the first soaking has been completed, the bath should be brought up to the original strength by mixing 7¾ lb. of the soaking oil in 2 gal. of water and 2 lb. of gelatin in 5 gal. of water, heating the latter until it is completely dissolved and then adding both solutions to the original bath and bringing up to the 50-gal. mark. This procedure can be repeated indefinitely. The method described gives a boil-off of approximately 8%, with a clearance of 4½%. If a higher boil-off is required, the oil content of the soaking bath should be increased proportionately.

Full-Fashioned Defects...

THEIR DIAGNOSIS AND CURE

By Albert E. Parker

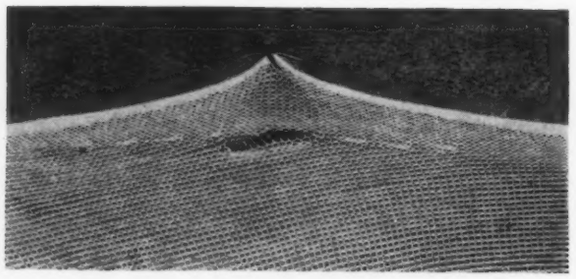
Educational Instructor, Ajax Hosiery Mills
Phoenixville, Pa.

AMONG the defects which the foreman and fixer are called upon to correct in the everyday routine of hosiery manufacture are faulty narrowings, catch-bar trouble, and cuts in the fabric. In this article will be pointed out the various causes and remedies for these difficulties. If the foreman is familiar with these points, quite often he will be able to arrive at a fair conclusion as to the cause of the trouble. Thus, without actually seeing the machine, he can tell the knitter, or his own assistant, just what should be done to prevent the defect.

Bad narrowings head the list of troubles which make it necessary for the knitter to call on the fixer to make frequent adjustments to his machine. Often there are only one or two sections that are giving trouble. If so, it is necessary to determine whether or not the sinker-heads and knocking-over bits are properly centered with the needles. This should be checked first with the needles up. If they are found to be correct, the machine should then be turned until the needles are down even with the nose of the sinkers, and a check again made at this point. If the needles lean to the left or right, it shows plainly that the trouble lies in improper spacing of the needles. In order to make sure that they are centered properly, the narrowing combs or fingers should also be examined, both when in the sinkers and when going into the knocking-over bits.

Needles and points being off center, however, is not the only cause of narrowing holes. Carriers running over the tops of the sinkers, either from a catch-bar jump or the backing up of the machine, will throw the sinkers out of line and cause narrowing defects. It is easy for the knitter to detect one or two bent sinkers; however, when 1 or 2 in. of sinkers are slightly swayed to one side or the other, they can only be detected by a close inspection. If the trouble is in different sections of the same narrowing, the lock dial on the narrowing head rack should be examined to see if the pin fits in the nick of the dial at each narrowing. If this pin fits in the narrowing, but jumps out while running between narrowings, it should be taken out and examined to see if it is worn and needs grinding to fit the slots in the dial. Only on an old machine will the dial need re-slotting. Any play in the narrowing nut and spindle should be taken up.

If, after making these adjustments, the machine still makes narrowing holes, the entire narrowing machine should be gone over and checked for height and levelness all the way across. For this purpose a narrowing machine gage is used. Often a few sections will be found that do not give any trouble, and these sections can be used for the proper adjustment of the gage,



Narrowing defect

even though it is a little higher or lower than the standard gage calls for.

Another test for the correct height of the narrowing machine is to take out a needle at the narrowing finger, then cut it off halfway between the tip of the beard and the bottom of the groove. The needle is then put back in the machine, and the narrowing finger observed closely when it reaches the lowest point in the narrowing. If the narrowing machine is of the proper height, the tip of the point and the top of the cut needle will be even with each other.

Next the presser roller should be checked. In order to do this the machine should be turned until the slur-cocks are halfway across the head. A thickness gage should then be used between the trucks and the round parts of the presser cams. The trucks must be equidistant from the cams in each case. A little more press will quite often stop narrowing trouble. Care must be exercised, however, in putting on more press, as this might cause broken needles and cuts in the fabric.

It is also important to check up on the needles. The knitter should be required to straighten a few needles and inspect them carefully to see that he has the beards the proper height and shape and also that the beards are centered correctly. No amount of adjustment will eliminate narrowing holes if the needles are not absolutely straight before being put in the machine.

Catch-Bar Jump

Proper functioning of the catch-bar depends on its free movement both horizontally and vertically, the correct height and horizontal position, and the right setting of the verge plates.

Fixers and foremen will often save themselves a lot of time and worry when catch-bar trouble starts if, before making any adjustments, they will first look over the back catch-bar shaft bearings and make sure that they are well oiled and that the shaft is running free. As the bearings of this shaft are directly under the moistening boxes, the splash and drip from these sometimes gets into the bearings, causing them to rust. This rust binds the bearings and retards the motion, thus leading the fixer to think that the catch-bar is out of adjustment. When this condition exists, the catch-bar usually jumps once every few days, especially when the machine is going slow in the splicing. This condition

gradually becomes worse; and nothing wrecks a machine quicker than catch-bar jumps.

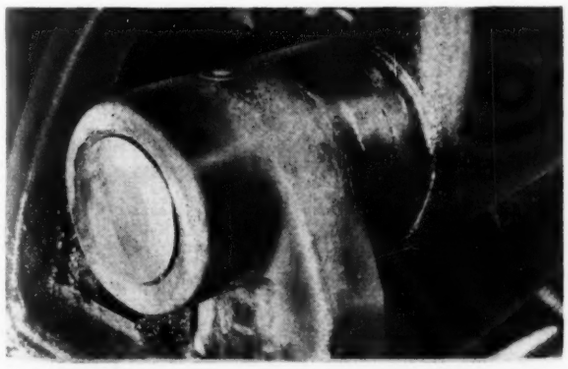
Some hosiery-machine builders have realized how important it is to keep the back catch-bar shaft running freely, and have equipped the back catch-bar shaft bearings on their latest machines with Alemite fittings and use a grease gun on these bearings. A simple and economical way to overcome the drip getting into the bearings on machines not so equipped is to take a large copper belt-rivet, cut the stem back to $\frac{3}{8}$ in. and put it in the oil hole. The large head will prevent any moisture from getting in the oil hole, and the rivet is easily lifted out when oiling the shaft.

After the back catch-bar bearings have been inspected and found to be in good condition, the catch-bar should be lifted in order to look for bent dividers and any foreign matter that might have been dropped between the catch-bar and verge plates, such as broken dividers, points, or needles. It is also essential to look for badly worn or cracked verge plates.

In order to check up on the horizontal position, the machine should be turned until the needles come up and the catch-bar has risen ready for the sinkers to be pushed forward by the slur-cocks at the beginning of the course. In this position the catch-bar gage provided for this purpose should be used by fitting it on the front bed to the nose of the sinkers. This should be a snug fit, the same all across the machine. In making this adjustment, if it is a slight one, the set-screws at the top of the back vertical arm should be used. If the catch-bar is decidedly out of line, the set-screws at the bottom of the vertical arm should be loosened, the sinkers set up to the gage, and the set-screws tightened.

In order to check for the proper height the sinkers should be pushed a little forward, and a striking jack the same gage as the machine should be used. This should just slip in between the bottom of the catch-bar and the tops of the sinkers. Any adjustment required is made on the front lifter arms.

After the catch-bar is set for height, the machine should be turned until the catch-bar moves to its farthest

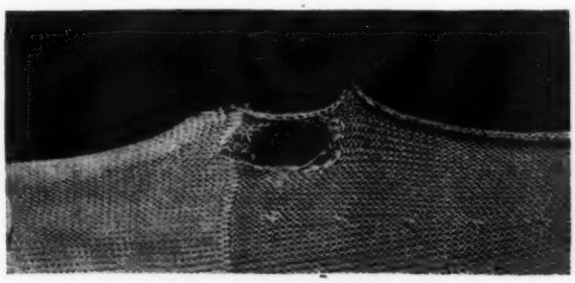


A rivet head will prevent moisture from getting in the oil holes on the back catch-bar shaft

point forward at the end of the course. The catch-bar truck should be in the center of the cam bit. At this point the space between the sinkers and the verge-plates should be tested. There should be a little play equal to the thickness of a divider, or 0.005 in. If there is too much play, the cam bit should be raised. If the sinkers are too tight at this point, they will prevent the lowering of the catch-bar and cause it to miss.

All the verge plates should now be checked with the verge-plate gage. The machine should then be turned across and watched closely to see that the catch-bar starts to move forward with either the second or the last sinker. Then the machine should be turned across to the other side and observed to see that it is exactly the same as the first side. If both sides are not the same, an adjustment must be made on the Pitman rollers.

Cuts in the fabric are common, and their causes



A cut in the fabric

numerous. Poor conditioning of the silk, however, is the most frequent cause. The silk should not be wet in spots and dry in others, but should have an even moisture throughout. Furthermore, after having been wound damp or humidified, it should not be allowed to dry out before being used, as this will cause the silk to drag on the cones and result in tight streaks or holes in the fabric. If the cuts appear at various parts of the machine, a new set of silk should be tried before making any adjustments. If they still persist with the new set of silk, a test should then be made for rough needles. By pulling the fabric up and down on the needles, one can readily determine if the needles need polishing.

If there is too much press, or if the catch-bar is too far forward, or the needle-bar too low, cuts in the fabric may occur. If on check-up on the press it is found to be too much in places, a little should be taken off in order to equalize the press along the entire machine. This operation should next be repeated with the catch-bar. The needle-bars should then be leveled, and any low bars that are found should be raised. Finally the knocking-over bits should be examined, using the gage provided for this purpose. This procedure usually stops the cutting of the fabric. Should the machine still cut after being trued up, however, it should be turned and observed at the places where the most stress is put on the stitch. The pressure at this point should then be eased up, whether it is caused by too much catch-bar, press, or knock-over. Care must be exercised in raising the needle-bar to stop cutting. This raising of the needle-bar, however, is a quick remedy, but one which might result in sleazy work, narrowing trouble, or poor selvages.

Cuts are also caused by worn slur-cocks and improper clearance of the sinkers between the slur-cock and verge-plate. The clearance at this point should be equal to the thickness of a divider. Flying sinkers (caused by lack of grease in the striking jacks or the improper adjustment of the jack springs) rough eyelets, gummed up snappers and tension rings, and cut carrier tubes all play their part in bringing about this trouble.

No amount of adjustment will stop cutting if the machine has settled in places because of poor flooring or foundation. The only remedy in this case is to re-level the entire machine.

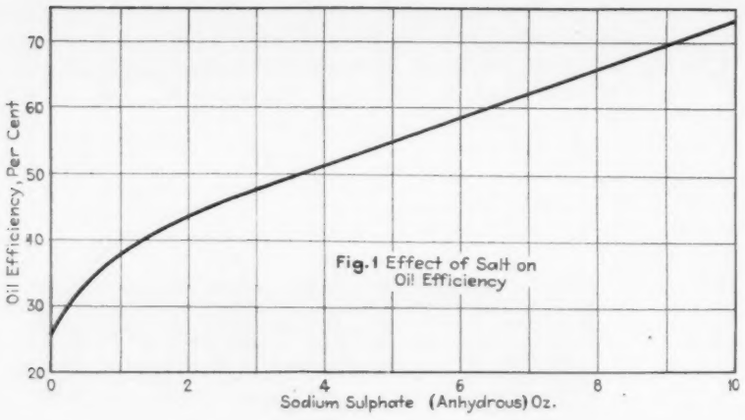


Fig. 1 Effect of Salt on Oil Efficiency

Saving in Oil

BY USE OF SALT IN SILK SOAKING

By Ralph Hart

Hart Products Corp., New York

LITTLE information has been generally available in the past as to the extent to which the silk throwster can benefit by adding salt to the silk-soaking bath. Some time ago the present writer investigated quantitatively the effect of salt on boil-off and oil efficiency, and believes that the data, though not complete, may help partly to supply this information. In this article, therefore, are outlined the results of this study.

The investigation consisted in making laboratory soakings, using two skeins of silk for each soaking, but otherwise duplicating practical conditions as closely as possible, with various quantities of anhydrous sodium sulphate, and determining indirectly the boil-offs of the soaked silk. Boil-off was found in the following manner: The total percentages of solids in the bath before and after soaking were determined; the former gave the total amount of oil used, the latter (by assuming that bone-dry silk absorbs its own weight of liquor after soaking and centrifuging) gave the amount discarded, and the difference the amount of oil left upon the silk. This method of calculating boil-off was found to check closely with actual boil-off determinations, provided the liquor left in the silk is approximately the assumed amount, and is recommended for rapid work or where there are many such tests to be made.

Table I shows the effect of salt on the oil efficiency and the boil-off. The action of salt on the oil efficiency is also shown in Fig. 1. The table and graph are based on 100 lb. of silk, soaked in 60 gal. of water containing 12 lb. of soluble oil, 1.5 lb. of soap, and various amounts of sodium sulphate. It will be noticed that when the salt content was raised from zero to 10 oz., the oil efficiency increased from 25.4 to 73.4%, and the boil-offs increased from 21.1 to 25.8%. These figures indicate clearly the sensitivity of the soaking emulsion to being broken by the addition of salt, with a gain in boil-off and oil efficiency. Data in Table I should be considered only as approximate, since the results would naturally be affected by the stability of the oil emulsion, acidity of the silk, hardness and total solids in the water, etc.—factors which were not investigated during this work.

The saving in oil by the judicious addition of salt may be judged by referring to Table II, in which the boil-offs and oil efficiencies are given for soakings containing various amounts of oil, but no salt. It will be noticed that the exhaustion of the bath, as shown by the drop in concentration after soaking, is small when compared with the results in Table I, where salt was used. The oil efficiency in the absence of salt was never above 30%, and the boil-off only about 23.0%, even with 24 lb. of oil. The same boil-off is possible with 5 oz. of salt and only 12 lb. of oil, or a saving of 50% in the amount of oil. In practice a somewhat better oil efficiency than shown in Table II is usually obtained, due to the presence of some salt in the oil or to other factors tending to destabilize the emulsion.

Roberts has pointed out recently (*Silk Digest Weekly*, March 13, 1933) that judicious use of salt in the silk-soaking bath is not detrimental either to the silk or to the process. In this paper the present writer has shown that a considerable saving in the amount of oil (by the tub method) may be effected by its proper use. It is evident, therefore, that correct use of salt in the soaking bath offers the throwster a safe method of effecting economies.

TABLE I—

Effect of Sodium Sulphate (anhydrous) on Boil-off and Oil Efficiency

Experiment No.	Concn. Soak'g Bath, Per cent Before	After	Sodium Sulphate (Anhyd), Oz.	Boil-off (calcd.) Per cent	Oil Efficiency Per cent
1	2.32	2.11	0	21.1	25.4
2	2.33	1.66	2	22.7	41.8
3	2.37	1.41	4	23.6	51.3
4	2.36	1.21	6	24.2	58.0
5	2.42	1.00	8	25.2	66.1
6	2.42	0.79	10	25.8	73.4

Factors remaining constant during the experiments:

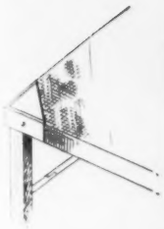
Silk (air dry)	100 lb.	Method	tub
Water	62 gal.	Temp.	85–90° F.
Soluble Oil	12 lb.	Time	overnight
	Soap 1.5 lb		

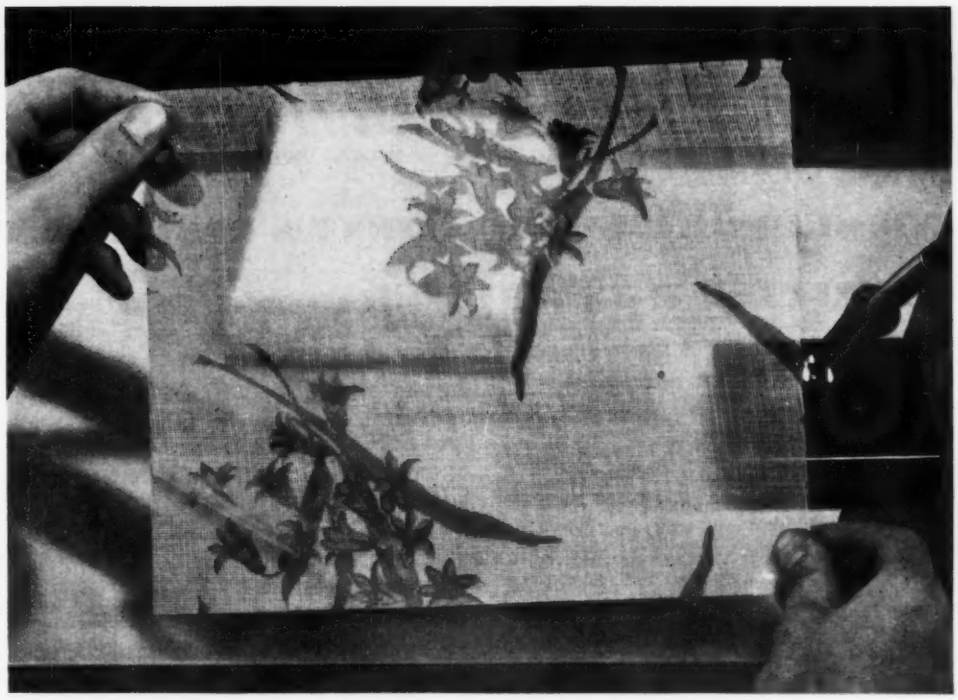
TABLE II—

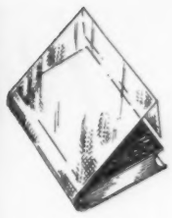
Effect of Oil on Boil-off and Oil Efficiency

No.	Soluble Oil, Lb.	Concn. Soak'g Bath, Per cent Before	After	Boil-off (calcd.) Per cent	Oil Efficiency, Per cent
1	12	2.32	2.11	21.1	25.4
2	15	2.78	2.54	21.7	25.2
3	18	3.15	2.82	22.2	26.6
4	21	3.38	2.96	22.6	28.2
5	24	3.73	3.22	23.2	29.3

Note: Other factor the same as in Table I.







Cellophane-Faced Fabrics

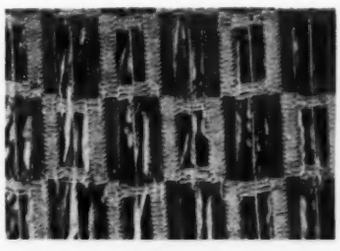
OPEN NEW MARKETS TO TEXTILES

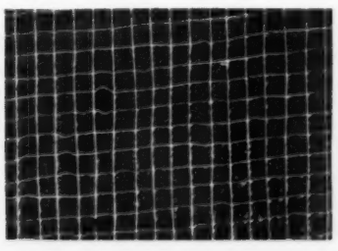
ONE of the most striking and encouraging features of the depression, from the textile point of view, is the stimulating effect it has had upon the development of new markets through creation of original and novel products. The latest addition to this list is the Doplex fabrics, offered by the Dobeckmun Co., of Cleveland, O. Briefly described, these fabrics are textiles with Cellophane facing, the Cellophane being laminated to the fabric by means of a special process. While the method is applicable to all fibers, it is most practicable when used on cottons or rayons, as it lifts these to a higher-price market.

The Cellophane facing gives the fabrics various added advantages, which makes them available in fields hitherto denied to textiles. On a cotton print, for example, the design, showing through the Cellophane, stands out with sparkle and accentuated beauty of color; the treatment gives the fabric greatly increased body, and, most important of all, the textile can be cleaned with a damp cloth. Wide-spaced mesh goods lend themselves especially well to the process. Among the fabrics to which Cellophane now is being laminated are: printed and plain marquisettes, printed scrim and voile, corduroys, the whole range of gauzes and various specialty fabrics.

At present, the two major markets for the Doplex fabrics are: first, household uses, including garment, hat or shoe bags, aprons, lamp-shades, chair-coverings, boudoir trimmings, shelf-coverings, drawer linings, and the whole novelty field such as sewing boxes, book covers, etc.; second, window display and stage decoration, including custumes, back drops, stage hangings, etc. The glittering appearance of the fabric makes it notably effective for the theater and it has already been used with success in several Broadway productions.

However, the manufacturers of Doplex regard these as merely preliminary markets, and new outlets for the fabrics are developing constantly; its possibilities for packaging are considered quite important.





Many kinds of fabrics may be Cellophane-faced. Illustration at top of page shows transparency and luster of Doplex; sketches show a few uses.

Abolish the Skein Test

AND SUPPORT GOVERNMENT'S FIBER RESEARCH, COMMITTEE D-13 ADVISED

THAT the skein method of testing yarn strength should be entirely abolished was the recommendation of Prof. George B. Haven, of Massachusetts Institute of Technology, made to Committee D-13, the textile committee of the American Society for Testing Materials, at its meeting in the New Yorker Hotel, New York, on April 6 and 7. "A few years ago," Professor Haven wrote, "the silk trade, becoming weary of skein-test errors . . . decided to inaugurate a new type of test—the serigraph method. There is no reason why the use of the serigraph method should be confined to small yarns, inasmuch as the errors and vagaries of the skein method, especially regarding knot breakage, appear in the worst light with heavy, strong material. It is the author's hope that ultimately the serigraph method may find adoption in *all* yarn and cord tests."

Interesting as this conclusion, reached by a recognized leader in textile testing, was to the committeee, whose members represent the important mill laboratories of the country (in most of which the skein test is dominant), the meeting was aroused by another equally absorbing matter. After listening with pronounced approval on Thursday evening to a paper by Dr. Robert W. Webb, of the Bureau of Agricultural Economics, Dept. of Agriculture, outlining the extensive work being conducted in studying the American cotton fiber and improving its suitability for spinning, the committee read in the newspapers on the following morning that the Bureau is included among the governmental departments which may be abandoned under the administration's economy program. An animated discussion during the morning business meeting developed the general opinion that the intensive research being conducted in foreign cotton-growing countries would render the abandonment of such work by the United States ruinous to the Southern farmer. It was also agreed that the Bureau's long work in developing data through thousands of tests on cotton and wool has just reached a point where the textile industry can begin to capitalize to an appreciable extent on the results and that cessation of the work would be most unforunate from the standpoint of the mills. As a result, the committee sent telegrams to several government officials in Washington, including President Roosevelt and Secretary Wallace, urging that the textile work of this Bureau be continued; and it was recommended that the mills represented on Committee D-13 apply similar pressure individually.

That fiber quality should be properly recognized and rewarded in order that the grower may find an incentive for the improvement of his crop was the main argument of Dr. Webb's remarks. Before this could be done it was necessary to determine what constitutes quality in cotton fiber, and this has been the object of years of persistent study by Dr. Webb and his staff. There are many factors besides staple length which this study has already shown to be of great importance. One of these is fineness of the fiber, always considered in the case of wool but usually overlooked in the case of cotton. Other items include the thickness of the fiber wall, uniformity of the fiber diameter, spirality, and methods of ginning.

The accompanying table is an example of one part of Dr. Webb's work selected at random. It represents only one series of tests on three samples of cotton and therefore must not be taken to indicate the comparative average qualities of the types and crops represented. It is printed here to show the relation which various fiber characteristics appear to bear to each other and to the strength of the product. Of particular significance are the values indicated for thickness of the fiber (weight per inch), number of fibers in the cross-section of a bundle, and the percentages of thick- and thin-walled fibers.

Ephraim Freedman, R. H. Macy & Co., Inc., New York, was toastmaster at the banquet Thursday evening, as well as chairman of the program committee. In addressing the committee at the banquet, Dr. Paul G. Agnew, secretary of the American Standards Association, asserted that the forgotten man is the consumer as far as testing is concerned. Such work as is conducted by Committee D-13 is too often confined, he said, to manufacturing matters and does not offer so much benefit to the consumer as it properly should.

The business meeting Friday morning was presided over by Prof. Herbert J. Ball, of Lowell Textile Institute, who is chairman of Committee D-13. Professor Haven's paper was read at that time in the author's absence by W. D. Appel, chief of textile section, Bureau of Standards. An abstract follows:

In the haste of making routine skein tests, frequently the ends in the skein are not even tied together, the skein exhibiting its strength by the frictional holding of the 80 or more circuits of yarn. If the ends are tied, the act is accomplished with but little regard to the tension in the yarn; and the knot may be of most any type most familiar to the overseer. Needless to say, such tests exhibit wide variations and frequently give low values to the yarn.

Even though the reeling may be accomplished with considerable care, there is very little to guarantee the same length of yarn in each round of the reel; therefore the various circuits resist with varying amounts the breaking load of the skein. Generally, the tightest circuit, and the weakest one as well, will break; and if the test is stopped abruptly at the first sign of rupture, there will frequently be found only one break in the whole skein.

In most modern tests, the spools are mounted upon loose axes, so that they can turn about under the attempts of the yarn to equalize the tension and holding power of the various circuits. This is never fully accomplished, however; and it is a rarity ever to find in a skein test anything like simultaneous breakage of a reasonable proportion of the circuits. The skein test, therefore, is a means by which 120 yd. or more of yarn is subjected to tension. The in-

creasing load automatically searches in the skein for the weak spot, and the circuit breaks at a value which indicates the yarn strength at its very lowest value.

As a means of indicating uniformity or otherwise, the skein method may be of some value; but is it fair, when yarn is used in plies or fabrics, to base our estimate of its excellence upon its breakage at the weakest spot under the most unfavorable conditions? The skein strength of 80 circuits of yarn is nowhere equal to the average strength of the separate circuits if tested one by one. When employed in woven fabric, certainly the average strength of the yarn is the desirable quantity and not either the minimum or the maximum strength. While a large fluctuation in strength is not desirable, it is, nevertheless, unjust, in the opinion of the author, to gage the excellence of any product solely upon its maximum and minimum values.

Stretch diagrams taken upon skein tests indicate roughly the extension of the skein between spool centers. Of course, the stretch of the numerous circuits around the semi-periphery of the spools is very much altered by the presence of friction. It cannot be said therefore, that the stretch of a skein represents in any sense the extension of 120 yd. of yarn. The friction upon the circumferences of the spools varies with type of yarn, its size, moisture, and twist.

A flat serigraph sample does not kink and twist as does the skein when undergoing conditioning, but rests flat and in perfect order, and gives the air of the laboratory full access to all sides of the yarn strands. It is an acknowledged fact that when skeins of yarn are taken from a reel and hung up to condition, unless held in a distended manner, a very tight kinking action will ensue and only the outside of this kinky skein will absorb moisture.

It is sometimes claimed that the serigraph method is undesirable, since the broken specimens cannot be enclosed in an airtight glass capsule immediately after the test for moisture determinations. Of course, it would be inaccurate to inclose the gummed paper and all in a capsule for measuring the regain, but this obstacle is not insurmountable. It is the author's practice in taking two or three serigraph specimens from each skein to leave a "tail" or unused portion of the skein attached to each of the serigraph specimens. These specimens, with the tails appended, are hung upon the conditioning frames and brought to a very accurate moisture regain. It is perfectly fair to assume that the tail absorbs moisture at the same rate as the same yarns in the serigraph specimen only an inch or two away. After the serigraph specimen has been tested for strength and stretch, the tails are cut off, capsuled, weighed, dried, and reweighed to determine the moisture condition.

If the yarn is of cotton or other short-fibered stock, a 3-in. serigraph specimen is sufficient. If the fibers are much longer—such, for instance, as wool fibers—it is desirable to equip the reel with a special three-sided frame. Each side of such a frame being 18 in., it would be possible to glue up a serigraph specimen 15 or 16 in. in net length. This is longer than many fibers and would give a fair test of the yarn strength. Not only are serigraph specimens adaptable to fine yarns, but the same method may also be applied to plies, hawsers, and cables of considerable strength and complication. Of course, in these large units, it may be desirable to limit the ends in the serigraph specimens to a much smaller number than those of the standard skein.

When it has been attempted to test strong cords, such as shoe thread, for instance, by the skein method, with a limited number of circuits in the skein, the author has very often found it difficult to tie a knot of adequate efficiency to avoid breakage at the knot. The skein test was therefore more of a determination of his ability to tie good knots than it was to ascertain the character of the shoe thread.

The author has made many tests of the skein and the serigraph type, and would summarize the findings in the following manner:

Advantages of serigraph method: (1) Determines yarn average rather than minimum strength. (2) Meets more nearly the practical conditions of the yarn when woven in a fabric. (3) Gives a more accurate gage length for stretch readings. (4) Is vastly easier and quicker to bring to definite moisture condition. (5) Can be inserted in the testing machine with greater accuracy than the skein. (6) Affords an easy method for accurate moisture determination. (7) Especially adaptable to very stretchy materials. (8) Economizes material.

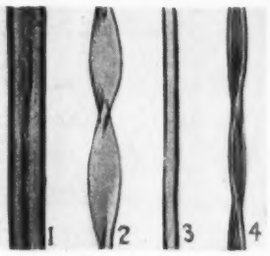
Disadvantages of serigraph method: (1) Slightly more time necessary in preparing specimens. (2) Does not indicate the maximum variation in yarn strength. (3) As yet not widely used for other than silk yarn.

Advantages of skein method: (1) Long use and habit in most laboratories. (2) Little technical skill necessary in manipulation.

Disadvantages of skein method: (1) Wasteful of material. (2) Inaccurate results often arise from knot breakage. (3) Slow and sometimes impossible to bring to definite moisture condition. (4) Gives extreme values rather than averages. (5) Frequently gives stretch diagrams beyond machine's capacity to record. (6) In strong threads, may indicate knot breakage in spite of best efforts. (7) Gives a sample for moisture determination from which doubtless considerable lint and short fiber have been snapped out at the time of breakage.

It is the general practice, after a skein is broken, to capsule the fragments and use the same as a means of determining the moisture present in the yarn. It is an open question whether the extreme tension upon the fibers at breakage alters the mechanical moisture present or not. It is certainly conceivable that this extreme tension may serve to expel some of the moisture into the air.

Photomicrographs of American Upland cotton fibers treated with caustic soda. The thick-walled fibers appear as smooth rods, Dr. Webb stated, while the thin-walled resemble twisted ribbons. 1. Thick-walled coarse fiber. 2. Thin-walled coarse fiber. 3. Thick-walled fine fiber. 4. Thin-walled fine fiber.



COMPARISON OF TWO SELECTED AMERICAN DELTA COTTONS WITH AN EGYPTIAN UPPERS

	Delta 1931	Delta 1930	Egyptian Uppers
Length at 25% point, inches	1 1/32	1 1/32	1 1/32
Weight per inch, 1/10,000 mg.	59	57	45
Number of fibers per 1/1000 sq.in.	4890	5340	6960
Per cent thick-walled fibers	70.2	71.4	51.7
Per cent thin-walled fibers	19.8	17.8	30.5
Variability of length, coef.	28.0	28.2	34.0
Variability of weight per inch, coef.	10.2	15.8	8.9
Variability of thick-walled fibers, coef.	5.6	5.0	10.9
Variability of thin-walled fibers, coef.	16.8	14.3	18.4
Density of fiber bundles, gm./cc.	1.540	1.562	1.518
Bundle breaking strength, lb./sq.in.	58,100	64,700	68,900
Yarn breaking strength, 23s, lb.	98	101	103
Cord breaking strength, 23/5/3	16.4	17.3	18.2

Also presented at the Friday meeting was a paper by O. A. Belger, of the Belger Co., Newton, Mass., discussing his roving tester and roll-spacing determinator; and the various subcommittee chairmen tendered their progress reports. Final work on these subcommittee reports will be conducted at the June meeting in Chicago; and the D-13 booklet of specifications, embodying many of them, will be issued in the fall.

At the rayon subcommittee meeting on Thursday the abrasion testing of linings was discussed at considerable length by C. L. Simon, Industrial By-Products and Research Corp., Philadelphia, and by Frank Stutz, Better Fabrics Testing Bureau, New York. These gentlemen described their contrasting methods of test, that of Mr. Simon involving a treatment of the goods with acid "perspiration" solution and that of Mr. Stutz requiring the goods to be tested dry. Mr. Simon's method shows acetates to offer greatest wear resistance among synthetic-yarn linings, while Mr. Stutz's method indicates that viscose linings are superior.

The activities were concluded Friday afternoon by a trip through the Bureau of Standards of R. H. Macy & Co., Inc., New York.

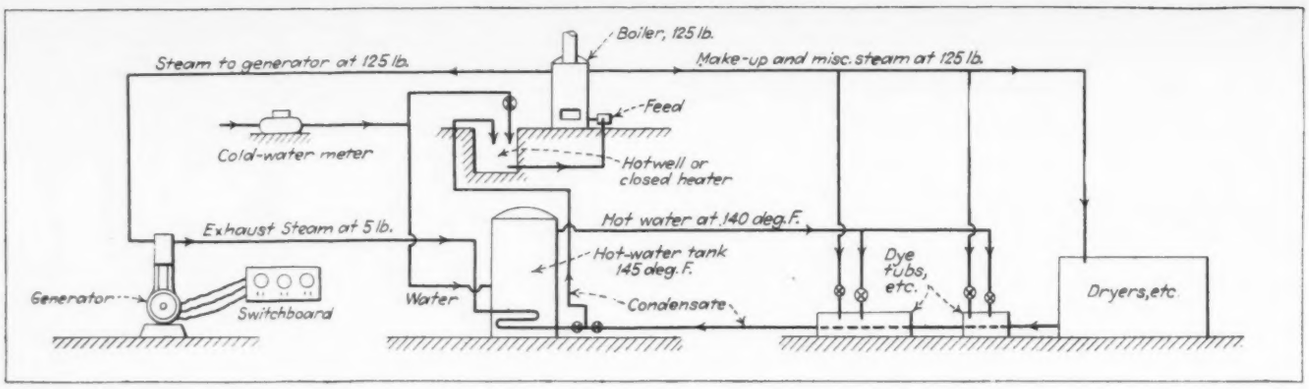


Fig. 1. Installation for producing by-product electricity.

Engineering Economies

IN SILK DYEING AND FINISHING PLANTS

By William K. Clendinning

◆ *In a previous article (March, 1933) Mr. Clendinning analyzed the expense items in a typical silk finishing plant and pointed out the savings which can be effected by preventing needless waste in the boiler room. He now describes various ways of reducing the costs for water, gas, electricity, etc. While the author confines his discussion to the economies which can be made in silk finishing plants, the principles advocated are, for the most part, equally applicable in all other types of dyeing and finishing establishments.*

ONE of the major expense items in silk finishing plants—and one which often is susceptible to marked reduction—is that for water. Results of many investigations indicate that usually it is cheaper to pump water from wells on the plant's property than to buy it from a municipal source. The determining factors are the cost of pumping, cost (if any) of water treatment, and carrying charges on equipment.

Before a well is drilled, it is necessary to learn what results have been obtained in other drillings in the immediate vicinity. Water has a peculiar habit of wandering underground to the most unexpected places. Wells near each other may yield totally different types of water, in totally different quantities. However, if there is record of a number of wells in one district producing a more or less similar yield, drilling may well be undertaken, and a deep-well pump of the mechanical or the air-lift type installed.

If water is to be taken from a pond, stream, or river, other factors enter into the problem. Riparian rights, chemical treatment necessary, mechanical filtering of impurities, real estate easements, installation cost and carrying charges, and power bill are among the details which must be considered. It is usually necessary to build elevated water tanks, in order that the water pressure in the dyehouse may be sufficient to fill the tubs as quickly as is necessary.

There are several ways to obtain the relatively small quantities of electric power required for the silk finishing plant. The simplest method is to buy the power from the local public utility. On the other hand, it is often possible for the mill to generate its own power at a lower cost than it can purchase it. In the small plant electricity can be generated by gasoline-engine-driven generators, Diesel power, steam power, etc. Probably the most common of these is the steam-power method. The power requirements of a small dyehouse or finishing plant are very similar to those of a power laundry, and in the up-to-date steam laundry the generation of electric power is growing more important each year. This is practical for several reasons, chief of which is the fact that the steam requirement for electric generation is much smaller than that needed for other purposes.

In order to understand how cheaply electric current can be generated in a silk finishing plant, one should understand that high-pressure steam (125 lb.) costs only 10% more per pound for coal than low-pressure steam (15 lb.), and that engine generators (or turbine generators) can be arranged to exhaust this steam at any pressure desired for miscellaneous dyehouse use.

Byproduct Electricity

The arrangement and general heat balance of a typical installation for producing byproduct electricity is shown in Fig. 1. This arrangement has been adopted in hundreds of chemical plants, thousands of laundries, and several of the large silk finishing plants. It will be noted from this sketch that the steam generated by the boiler is divided into two branches. One branch goes directly to the dyeing machines, weighting tubs, dryers, etc., where it is used to add the few degrees of heat required to the hot water from storage.

The second branch goes, at 125-lb. pressure, to the engine generator set. This branch is assumed to use only 40% of the total steam generated. This 40% is partially used (by reduction in pressure) in the gen-

erating set, and turns out all the electric power required for the plant. Then it leaves the generating set and passes through a closed heater (shown as a coil in the hot-water storage tank), heating the cold, fresh water required for the dye and weighting tubs. In heating this water, the steam is condensed and cooled to perhaps 180° F., and then is returned to the boiler feed line where it can be used again. This second branch is almost 100% efficient.

Inasmuch as high-pressure steam costs only 10% more to generate than low-pressure steam, it is obvious that the cost of electric current by this means is equal to 10% of 40% of the coal bill, plus carrying charges of generating set, plus perhaps 30% of the time and salary of the engineer. When these actual figures are finally worked out, it will be found that electric current has been produced for probably less than 1c. per kilowatt-hour.

A contributory advantage of such a system lies in the use of the hot-water storage tank, which not only makes for more rapid production in the dyehouse, due to decreased time for heating tubs, but also balances the load on the boilers and promotes steaming efficiency. This system has been successfully applied to even the smallest of plants (75 boiler horse power) with distinct advantage. Due to the fact that a closed heater is used, no oil from the engine can reach the silk.

Consumption of Gas

Gas is used extensively in all silk finishing plants on the tenter frames; it is usually bought from a public utility company, although some "bottle gas" is trickling through. The average cost under these conditions is 90c. per 1000 cu. ft. for gas having a heat value of 550 B.t.u. per cu. ft. Therefore the cost of heat by gas is about 1c. for 6000 B.t.u. For comparison, heat by means of coal-generated steam costs about 60c. per million B.t.u. (in average to poor practice), or 1c. for 16,600 B.t.u. Thus gas is inherently 250% more expensive than steam heat. If we assume the cost of operating a tenter for one month of fair production to be $150, we see that if gas can be replaced by steam on a tenter, a large saving can be made.

According to the statements of finishing experts, however, gas serves a double purpose in tenter operation. Not only does it dry the goods, but the sudden, "explosive" nature of the drying is said to have a beneficial effect of some sort. No one has ever given the author a satisfactory technical explanation of this phenomenon; but the silk finisher seems to think that sudden heat is required, and that his task cannot be performed properly without the use of gas.

At any rate, one function of a tenter is to dry, regardless of what the other functions may be; and drying can be effected by any source of hot, dry air. Apparently all types of tenter operations cannot be accomplished effectively without gas, but in some of the larger plants steam-heated tenters are being used satisfactorily for certain types of work.

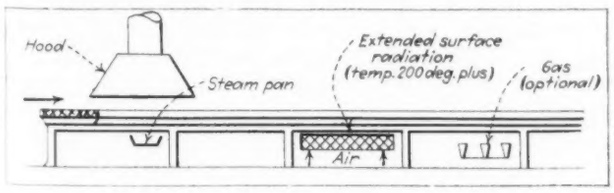


Fig. 3. Partial use of steam heat for gas.

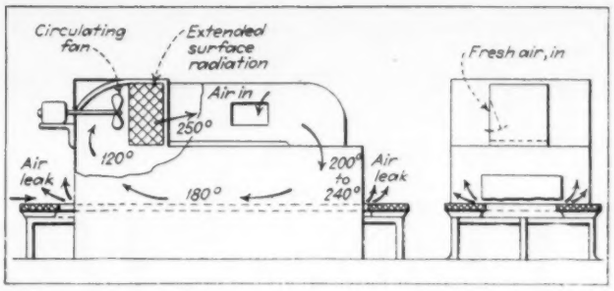


Fig. 2. Tenter housed as steam dryer.

In Fig. 2 is illustrated one type of installation in which the tenter is completely housed in a drying compartment through which hot air is circulated. Also, tenters have been equipped with blast-coil radiators, extended-surface radiators of the unit-heater type, and even plain pipe-coil radiators, and without any housing. In this way a temperature of as high as 275° F. may be applied to the goods if high-pressure steam is used. In Fig. 3 is shown a tenter equipped with both extended-surface radiators and gas burners. In addition to the arrangements shown in Figs. 2 and 3, mention should be made of a method which is being developed for a substitution of electric for gas heat; the actual economy of this may be left to the imagination.

While it is probably true, that modifications such as these cannot be made to every tenter in the plant, perhaps one tenter in three, in a plant doing miscellaneous work, can be so equipped. Wherever steam heating can be applied, the monetary saving is unquestionable.

Fog Elimination

It is axiomatic that labor can be saved in any plant at any time by improvement in working conditions. It is equally true that good working conditions increase the quality as well as the quantity of a man's production. Direct savings in labor costs in a plant which has improved its working conditions are also accompanied by fewer re-dyes and less accidents. There is a very great field for improvement in the dyehouse working conditions, principally by the elimination of fog. Fog should not be tolerated. It can be completely removed in all cases, without increasing the temperature of the dyehouse. The method is to blow in heated air, which re-evaporates the fog and in so doing, has no heat left over to heat the air in the room.

As a rule the use of fog-removal equipment is more expensive and less desirable than proper dyehouse design. However, once a dyehouse has been built, it is difficult to raise the roof, provide monitor fans, reduce the number of dye kettles per foot of floor space, etc. These precautions against fog should have been taken when the dyehouse was built. Therefore, unless the finisher is to tear down his plant and build over again (which in many cases he could do profitably), he must resort to some method of fog elimination.

Further economies can be effected by rearrangement of equipment and improved scheduling of work to make certain that the goods travel through the plant in as straight a line as possible. As was stated previously, the writer believes that by preventing needless waste of coal, water, electricity, and gas, the average small finishing plant can reduce by 33⅓% the cost for these items.

STEAM AND ELECTRICAL PROBLEMS CONSIDERED BY

Master Mechanics

E. E. Edmiston, elected chairman of the section.

STEAM piping and valve problems were discussed at the spring meeting of the Master Mechanics Section of the Southern Textile Association, which was held in Charlotte, N. C., April 21. The program, which was in charge of E. P. McWhirter, of Union, S. C., chairman, included questions on the maintenance of boilers, treatment of feed water, and a demonstration on the efficiency of electric light bulbs.

E. E. Edmiston, master mechanic of the Mooresville (N. C.) Cotton Mills, was elected chairman of the section to succeed Mr. McWhirter, whose term had expired.

Opinion was divided as to whether gate valves or globe valves are the most satisfactory for steam lines. Whereas several members felt that gate valves are undesirable from a maintenance standpoint, another group, of which C. A. Spencer, of Union Bleachery, Greenville, S. C., was spokesman, declared that gate valves would give excellent service if care is exercised in their selection. It was pointed out that there are several types of gate valves on the market, and that one designed for water lines should not be used on steam lines. Mr. Spencer said that his experience with 2-in. to 16-in. gate valves on steam pressure lines had been highly satisfactory.

H. H. Iler, mechanical engineer of the Union Bleachery, recommended globe valves with renewable discs, while another member in comparing results with the different type valves on the same kind of steam lines, said that it was necessary to replace stems in the gate valves, while the globe valves gave no trouble except for packing. It was stated that the failure of gate valves was sometimes due to scale in the pocket cutting out the seat.

No definite explanation of the causes of water hammer in steam lines could be given. One theory was that it is caused by lines being too long and having pockets in them, while another possibility was said to be the sudden condensation without atmospheric relief, thus creating a vacuum and a condition in which slugs of water cause the hammering effect. It was generally agreed that water hammer in steam lines is due to faulty equipment and poor arrangement of lines.

The majority of members were of the opinion that the proper way to elevate steam lines is with the pitch away from the source of the steam. Also, it was felt that all steam lines should be insulated to prevent loss of heat. Chairman McWhirter reported experience in the insulation of a 200-hp. boiler which was used for heating and slashing only. As there was a considerable amount of "dead" grate space, it was decided to reduce the size of the fire box to only half its original area, the result being a considerable saving in fuel consumption. Next, the top of the boiler was covered with a 4-in. layer of asbestos cement, which was so effective in conserving heat in the boiler that the coal consumption was still further reduced.

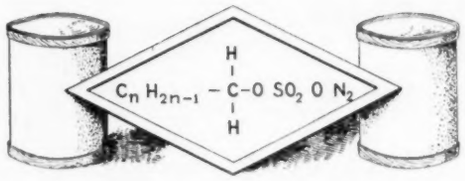
In reply to a question as to whether or not water should be kept in the boiler ash pit, Mr. Spencer stated that local conditions, type of equipment, and the amount of air space under the grate bars were the determining factors. In discussing the old practice of spraying water on the coal pile, two members advanced the theory that oxygen and hydrogen in the water, being disassociated by the application of heat, served to provide certain constituents that aid in combustion.

The consensus of opinion was that boilers should be "blown off" when circulation has stopped. Soda ash and kerosene were suggested as good agents for removing scale from boilers. W. G. Young, of Wiscasset Mills Co., Albemarle, N. C., recommended boiling with solution of soda ash and water for 24 hours with the heads off. His formula called for about 50 lb. of soda ash for 250-hp. fire tube boilers, with five or six gal. of kerosene on top. It was suggested that feed water be analyzed by a reputable laboratory to determine what kind and how much, if any, treatment of the water is necessary. Zeolite softeners were said to have several advantages, but to be not so good for the highest pressures, as they contain caustic and may cause embrittleness. It was suggested that not over 58% soda ash be used in cleaning boilers. Where there is trouble from pitting in boilers, a special boiler paint was recommended, to be applied after the surfaces have been sand blasted. Where there is too much oxygen in the water, feed water should be heated to 212 F. or above, using the deaerating heater.

An interesting demonstration showing the causes of lower efficiency in electric lamps, using an instrument for measuring light in foot candles by means to a photo-electric cell, was made by G. E. Park, illuminating engineer of the National Lamp Works of the General Electric Co. The four major causes of loss in light were shown to be: (1) Use of cheap lamps; (2) purchase of higher voltage lamps to give a longer life; (3) failure to provide lamps with reflectors, and (4) failure to keep bulbs and reflectors clean. In the demonstration it was revealed that a cheap, imported bulb (25 watts) gave only 22% as much light, as measured in foot candles, as a high grade American-made lamp of the same wattage.

J. W. Frazer, of the Lincoln Electric Co., talked on new types of metal for welding purposes. Nickel welding rods were said to be the most satisfactory for welding cast iron that is to be machined.

Fatty Alcohol Sulphates



THEIR PROPERTIES AND APPLICATIONS

OF THE many new chemical compounds which have been introduced to the textile industry in recent years, probably none have created more interest than the so-called sulphonated fatty alcohols. Due to the comparatively short length of time which they have been commercially available, it is impossible to predict accurately how large will be their place in textile processing. Already, however, the sulphonated fatty alcohols under the trade names of the Gardinols and the Brilliant Avirols, are finding application in a wide variety of operations; and almost daily other uses for them are being discovered. In this article, therefore, we shall review briefly the properties of these new compounds, and list some of their more important applications.

Technically, these compounds are the sodium salts of half sulphuric acid esters of fatty alcohols. They are prepared by hydrogenating an oil or fat, sulphonating the resultant fatty alcohol, and neutralizing with caustic soda. Coconut oil, for example, upon hydrogenation, yields mainly lauryl alcohol; oleic acid gives oleyl alcohol, from which Gardinol CA is derived; and stearin yields a mixture of cetyl and stearyl alcohols. The sulphonated fatty alcohols differ chemically from soaps only in having an OSO_2ONa group instead of a COONa group; and in many respects their properties are similar to those of the soaps. Thus, these newer compounds possess a powerful detergent action; excellent wetting-out, penetrating, dispersing, and emulsifying powers; and ability to form a stable lather or suds.

What makes the sulphonated fatty alcohols of particular importance to the textile industry is the fact that they differ markedly from the soaps in that as a class they do not hydrolyze; are practically neutral in solution, having a pH value of approximately 7; and are stable to acids; alkalis; hard water; concentrated solutions of common salt and glauber salt; and salts of copper, iron, and many other metals. Other characteristics of these materials are that they dissolve completely and rapidly in water, do not oxidize or turn rancid when applied to textiles, and in dilute solutions have a viscosity less than that of soap solutions. The ammonium salts are soluble and have a good detergent action, but, apparently, offer no advantages over the sodium compounds. The potassium salts, curiously, are only slightly soluble; while the calcium and magnesium salts are soluble and exert a strong detergent action.

In general, members of the series of sulphonated saturated fatty alcohols which have a carbon content of about twelve atoms (Gardinol WA) possess the highest wetting-out and detergent properties at temperatures below 40° C., this value decreasing gradually as a carbon content of eighteen atoms is approached. On the other hand, the detergent power at higher temperatures increases with an increased number of carbon atoms, while the resistance shown to calcium salts decreases slightly.

In addition to their detergent properties, the compounds prepared from stearin exhibit a wax-like property which extends their applications.

In distilled water the sulphonated fatty alcohols have detergent and wetting power similar to those of the soaps. However, it is in hard water and acid or strongly alkaline solutions, etc., where they prove particularly effective, eliminating danger of lime spots, and permitting use of detergents and wetting agents in processes where soap is unsuitable. Solutions of the sulphonated fatty alcohols do not have the "body" of soap solutions, thus limiting their application when the mechanical action of a viscous solution is necessary.

The sulphonated fatty alcohols appear to be particularly suitable for scouring wool stock, yarns, and fabrics; and their use in this connection is said to result in a clean, lofty material, with a characteristic and desirable hand. Similarly they can be employed alone or in conjunction with other detergents in scouring cotton and rayon and in boiling off of silk. They are satisfactory also for washing printed fabrics to produce clear backgrounds and, when this is a factor, to reduce the tendency towards bleeding.

As wetting-out agents, these compounds are used in desizing and bleaching baths, mercerizing solutions, silicate baths for silk weighting, mordanting and chroming liquors, etc. Ordinarily they are not recommended as assistants in carbonizing, as in the presence of sulphuric acid they are substantive towards wool fibers, form insoluble salts with aluminum chloride, and are decomposed by hydrochloric acid gas. In Europe they find application in acid fulling.

As dyeing assistants, the sulphonated fatty alcohols act as dispersing, leveling, wetting, and penetrating agents. With some dyestuffs they exhibit a retarding action. Among the various applications of this nature in which they are employed are included package dyeing, particularly of hard-twist yarns; dyeing of hosiery to obtain better penetration of seams and heels; dyeing of union materials to aid matching of shades; dyeing of silk with both logwood and acid colors; and dyeing of wool with various classes of colors.

Those compounds with wax-like characteristics (Brilliant Avirols) find their chief application in sizing and finishing operations, but also serve as assistants in scouring, bleaching, dyeing, etc.

The sulphonated fatty alcohols are being used or have been suggested for use in preparing coning oils for knitting yarns, for pasting acetate dyestuffs, for lubricating wool fibers before spinning, and for other diverse applications. A possible use, which to our knowledge has not been advanced previously, appears to be in the acid degumming of silk, particularly silk-wool mixtures.

Group and Unit Drive

COMBINATION EFFECTS SAVINGS. ENGINEER REPORTS

◆ *All contributions to the controversial subject of the relative economy of group and unit drives are welcomed by textile men. Recently, comparative figures on the investment and operating costs of these drives in two cotton mills have been released. These data are the results of investigations conducted by Victor A. Hanson, research engineer, the Mechanical Power Engineering Associates, an organization composed of the following companies: American Pulley Co., Bond Foundry & Machine Co., Cling-Surface Co., Clipper Belt Lacer Co., R. & J. Dick Co., Inc., Graton & Knight Co., E. J. Rhoads & Sons, S K F Industries, Inc., and T. B. Wood's Sons Co. Results of Mr. Hanson's investigation, as given in Case Studies Nos. 6 and 9, issued by the Associates, are summarized briefly.*

STUDIES made recently in two modern cotton mills indicate that use of a combination of group and unit drive, rather than unit drive on each machine, effects savings of 33.1% to 44.4% in installation costs, and 18.3% to 20.1% in annual operating costs. The plants investigated are typical up-to-date mills and at present are equipped for the most part with group drives, unit drives being employed only on those machines which demand it because of their location or other local considerations. Installation and operating costs were compiled first for the present combination group and unit drive. Next were computed the cost for installing individual motors on each machine and the operating cost with unit drive.

A summary of the installation and operating costs of the combination group and unit drives in the two mills studied and the estimated costs with unit drives is given in the accompanying table.

Mill A manufactures approximately 2,500,000 lb. of cotton fabric per year, using 19s to 22s warp and 16s to 26s filling. In this plant all machines except the bobbin cleaner and the humidity pump are group driven. The bobbin cleaner employs a short-center, flat-belt drive; the pump is directly connected. Spinning frames are all four-frame drive; the cards are driven by one 75- and one 15-hp. motor; looms are operated in groups driven by 20-hp. motors, except two smaller groups driven by 15-hp. motors. The present group-drive installation requires 51 motors; while to equip the mill with unit drive throughout, 768 motors would be needed.

Mill B produces approximately 7,500,000 lb. of cotton goods per year, using 30s to 75s warp and 25s to 44s filling. In this plant the openers and pickers, blowers, bobbin cleaners, shearing machines, and spoolers are unit driven with flat belts. Spinning frames are operated by four-frame drive; the weave room is all group driven. The present combined group-and-unit-drive installation requires 168 motors, while 2093 motors would be needed to equip this mill with motors on each machine.

The only complaint made against group drive in these plants is that oil leakage of bearings in the weave room causes damage. However, this difficulty is being remedied, it is reported, by use of proper bearings or by locating the drive below the floor.

In estimating the installation costs for unit drives, actual load tests were made on all types of machines in these and other mills to determine the correct motor sizes. In these tests, the product of the watts input by the efficiency of each motor at the load under which it operates was taken for the true load of the machine. To compute the power consumption of unit drives, the present annual consumption of each mill was used as a basis, and to this figure was added the power consumed by the difference in weighted efficiency between the group and unit drive. The power factor for unit-drive operation was determined by weighting, for relative motor load and relative time in operation, the normal power factor developed by each motor at its particular operating load. Due to the fact that the depreciation costs give unit-drive equipment the same life as group-drive equipment, and the further fact that in each mill the group-drive power cost shown is that developed by the present installation, which is not so efficient as it should be, the differences in operating costs as shown in the table are stated to be conservative. The results of these investigations indicate that the installation and operating costs for modern combined group and unit drives are much less than for unit drives on each machine.

Installation and operating costs of combination group-and-unit and unit drives shown by investigation in two cotton mills

Cost Items, Power Factor and Weighted Motor Efficiency	Combination Group and Unit Drive		Unit Drive on Each Machine		Amount Saved by Group and Unit Drive		Per Cent Saved	
	Mill A	Mill B	Mill A	Mill B	Mill A	Mill B	Mill A	Mill B
Installation Cost—Spinning Room	$16,979	$37,399	20,947	$50,604	$3,968	$13,205	19.4	26.1
Operating Cost—Spinning Room	18,053	52,854	20,330	57,549	2,277	4,695	11.2	8.4
Installation Cost—Weave Room	17,743	46,262	34,763	102,661	17,020	56,399	48.9	54.9
Operating Cost—Weave Room	9,693	30,660	14,962	45,880	5,269	15,220	35.2	33.2
Total Installation Cost	51,284	116,640	76,691	209,992	25,406	93,352	33.1	44.4
Total Annual Operating Cost	39,303	106,264	49,216	130,167	9,913	23,903	20.1	18.3
Total Annual Fixed Charges	7,692	17,496	11,503	31,498	3,811	14,002	33.1	44.4
Total Annual Maintenance Cost	957	1,747	1,908	2,653	950	906	49.8	34.1
Total Annual Power Cost	30,653	87,020	35,804	96,015	5,151	8,994	14.3	9.4
Power Factor—Entire Plant	88	82	69	74				
Weighted Motor Efficiency	83%	84.7%	78%	81%				

Good Layout

EXPEDITES WORK OF FOLDING AND PACKING

By Howard P. Nash, Jr.

IN MANY finishing plants the folding and packing room is regarded as a sort of a necessary evil, and is tucked away in some spare space and allowed to grow up in a haphazard manner that does not make for convenient or efficient operation. When it is borne in mind that the goods go from the packing room to the customer, it will be seen that this is really an important department. Also, in these days of rush deliveries an efficient folding and packing room is a vital factor in keeping promises.

Efficiency in this department requires good lighting and a layout of machines, tables, storage space, etc., which eliminates needless handling of the goods. A layout which minimizes labor and gives "straight-line" flow of material in process is shown in Fig. 1.

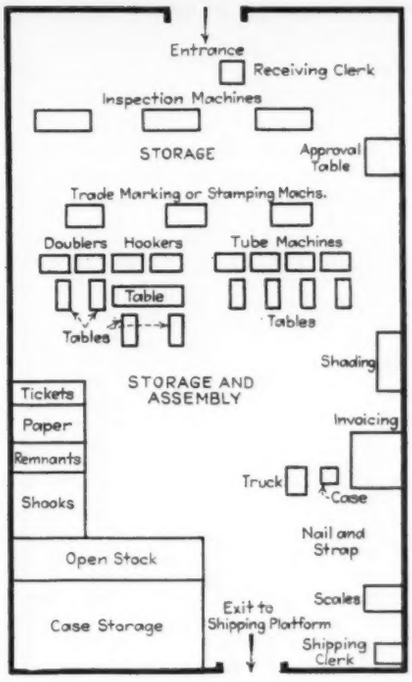


Fig. 1. Folding and packing room layout which gives "straight-line" flow of work in process.

Flow of Work

The goods, on rolls of about 500 yd. each, enter the room at the end near which the rceiving clerk has his desk. This clerk keeps a book containing copies of the mill orders for each lot on which he records the following data: number of yards received; date of receipt; record of approval samples sent to customer; comments on approval samples; yardage, if any, which has been returned for rehandling; department to which the goods were returned; date of the return and reason therefor; location to which the roll is assigned in the storage space; yardage that has been put up; and yardage that has been packed. The clerk indicates which rolls must be held for approval and are merely for inspection, and which are from lots that have been approved. The indication can be made conveniently by means of colored tabs stuck in the rolls.

The rolls in all cases are placed at the inspection machines. Operators of inspection machines examine the goods and cut approval samples. They also indicate, by placing small gummed stickers near the selvages, the places at which it will be necessary to make allowances, and classify as seconds such pieces as must be so considered, removing and returning for rehandling such pieces as would exceed the proper percentage of seconds and can be improved by rehandling.

The 1-yd. samples, cut for approval, are delivered to a clerk at the approval table, and there cut into two ½-yd. head ends, one of which is kept on file at the mill. After inspection, the goods that must wait for approval are placed in their assigned part of the storage space, while goods that are approved are delivered to the proper machines.

The type and location of the various machines are shown in Fig. 1. By the use of interchangeable jaws, the tube machines can be employed also to put up goods full width on boards. The papering tables are near the machines in order that pieces can be taken from the machines and placed directly on the papering tables.

A convenient method of shading goods rolled on tubes is to have the operator cut from each end of each piece a swatch about 3 in. wide. These are marked to correspond to the piece numbers and to show which swatch is from the tube end. Swatches from all tubes for a given shade and lot are compared with one another and with the approval sample.

After papering, the goods are assembled into case lots, invoiced, and packed. This can be done in one operation, the packer calling off the yards and other details as he puts the pieces in the case. The open-stock and case-storage spaces are adjacent, making it possible for one man to take care of both sections.

The suggested organization of the folding and packing personnel is shown in Fig. 2. This is, except for the shader and machine supervisor, the usual organization of such a department. If the plant handles a fair volume of work, these two men can well earn their way. Shading, if done fully and carefully, will require all the time of one man. The machine supervisor distributes rolls to the stamping and folding machines, keeping them supplied with work at all times.

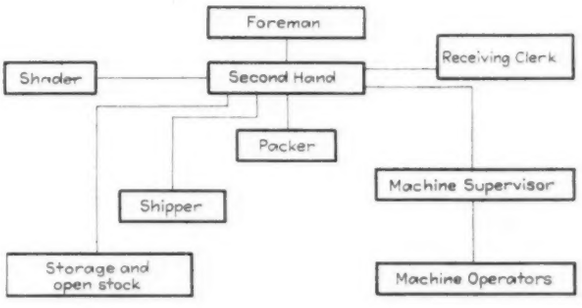


Fig. 2. Organization of folding and packing room personnel

THIS DEPARTMENT–

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in March is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Discussing National Problems" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Responsibility for Lubrication

Editor, Overseers' Round-Table:

Proper machine lubrication, to my mind, presents a problem that can only be correctly solved by departmental supervision. By this I do not mean that the overseers should personally supervise all oiling problems, but that the foreman or second-hand should be held responsible for the proper lubrication of all productive machines.

Today, when orders for goods require speedy deliveries, machines must be operated at maximum production with a minimum amount of upkeep. The only feasible method of proper lubrication, as I see it, in order to meet these requirements, is to have it done by the machine tenders themselves, under the watchful eye of the foreman or second-hand. Most of our labor today is on a "piece work basis" or a "group incentive plan," and this fact alone makes the lubricating angle a most important one in the eyes of the personnel of any department.

I do, however, agree most emphatically with "Pete" that the lubrication of all line-shafting and motors should be placed under the maintenance department. It is usually the policy of most plants to place the responsibility for this with the mechanical department. As to the lubricating of productive machines by the maintenance department, I would consider it unwise, for a maintenance man cannot take the interest in a machine that the operator of that machine does. In the second place, if the plant is a large one, too many men must be employed to handle this one job which would boost the maintenance cost. Finally, it would be impossible for them to reach all of the machines at the beginning of each shift, which is the proper time for lubrication.

SIMON L. TIBBETTS

Editor, Overseers' Round-Table:

An overseer has his definite duties in every plant. He must see that everything runs smoothly in his department, that his particular group of workers are at the peak of efficiency constantly, that his machinery and equipment is overhauled regularly, but not be burdened with the actual care of the machinery. The duties of the master mechanic should consist of taking care of all equipment and with these should be included, naturally, the regular oiling and greasing of the machinery.

The master mechanic is familiar with all forms of machinery. Who should be able to decide better than the mechanic when greasing and oiling is necessary, and how often it should be supplied? When an overseer takes care of his own greasing and oiling, there is almost certain to be definite waste. Such a case occurred in our plant. The overseer found it necessary to grease a motor every other day until our mechanic glanced at the motor. Immediately he discovered that oil was leaking out and that the grease was being applied in unnecessary spots.

WILL HERMAN

Editor, Overseers' Round-Table:

The mechanical department should not have supervision over all lubrication for the mill, especially in a large plant, but should have charge of all motors and line shafting. In our plant, with approximately 165,000 spindles, it would keep the master mechanic busy all of his time looking after the oiling. Consequently, he would not have the time to give his department what it demands.

Also, the overseer or second-hand can look after the oiling in his department better than anyone else. He knows intimately the peculiarities of his equipment and just how much and how often it should be oiled. Most of the overseers in our plant have a certain time for oiling the different parts of their machines and have the oiler report to them when he has finished oiling that part. Thus it is possible to keep a record of all lubrication.

We find the system described above to work very well and we would not be able to carry it out as efficiently as we do if the master mechanic had to supervise the

Overseers'

DISCUSSING NATIONAL

THE subject for consideration this morning, although being of fundamental importance, may seem a little out of the ordinary for our group," Superintendent Chase began the meeting. "Recent developments at Washington, with their direct bearing upon industry in general, and the textile industry in particular, have emphasized the current need for a better informed citizenship. Moreover, the petitions signed by several groups of mill workers, acting upon their own initiative, protesting against the Black 30-Hour Bill, and calling the attention of their Congressmen to the destructive features of the proposed law, certainly makes those responsible for mill management do some thinking. It makes me wonder if we have taken the necessary steps to keep our own employees informed about legislative proposals that we believe would work to their disadvantage as well as to ours? Do you think we should adopt any policy with respect to open discussion of national and State problems with our employees?

"What's your suggestion along this line, Bill?"

"We must realize that, while something proposed in Congress might be against the best interests of the workers," Bill drawled, "it would be a pretty ticklish job to get the idea across to them. Many of the operatives would certainly feel that the management was trying to dictate to them. They might close their minds to the facts as we interpreted them, and become more susceptible to propaganda on unsound propositions. Some might go so far as to write their Congressmen to support the very measures that would cause the most harm to the workers. When it comes to suggesting to the employees the kind of government they should have, or in any way mixing into politics, my idea is for the management to keep hands off by all means!"

Round-Table

PROBLEMS

"The chief argument that Bill has advanced against the discussion of national and State governmental problems with employees, to my way of thinking," Pete spoke up, "is really a point in favor of some type of educational work along that line. By this I mean that the condition Bill brings out is evidence that the people need more facts and training in getting the right slant on them. My suggestion is to develop a regular program, running year in and year out, by which sound economic facts may be presented to the workers, in mass meetings and on the bulletin boards. Thus we shall form a basis for better understanding of national and State problems as they arise. Then, when measures are proposed in Congress or in the State legislatures, our workers will be in a position to determine for themselves when a bill is likely to endanger the safety and size of their pay envelopes. This was the policy followed by the general manager of a group of mills in North Carolina and it certainly helped him handle the difficult problem of putting in wage reductions when they became absolutely necessary. It certainly is not a policy of forcing opinions down the workers' throats. I think that contribution of education along political and economic lines on the part of the mill management would aid in the development of better citizenship."

▸ Would you support Pete in his recommendation for a regular program of educating the workers on economic and social problems, or do you think the company should keep hands off? What would you suggest?

SUMMARY

RESPONSIBILITY FOR LUBRICATION. The majority of letters opposed placing the oiling and greasing of all machinery under the supervision of the master mechanic or plant engineer. About 82% of the replies favored giving the departmental overseer responsibility for lubrication of all productive machines under his supervision. Only 18% of the letters endorsed the idea of placing all machinery lubrication under the jurisdiction of the mechanical department, but almost every contributor felt that the lubrication of motors and line shafting should be supervised by the master mechanic. Several letters stressed the importance of a properly trained oiler for each department.

▼

oiling. There are times when the master mechanic has a big job which will keep him busy for two or three days and in cases of this kind the oiling would have to be passed up until he finished the job.

If, according to proposal, the master mechanic supervised all oiling, then the overseer would have an excuse for high supply costs, for excessive cloth seconds, and with machines stopped, his production would drop.

J. C. C.

Editor, Overseers' Round-Table:

When it comes to oiling shafting and motors, I think that should be under the supervision of the master mechanic. But as for the productive machinery, each department should have its own oiler. If the master mechanic had charge of oiling all the machinery, he would either have to have an oiler who had been "brought up" in a certain room, or one to oil in all departments. What would a man in the weave room know about oiling carding and picker room machinery? Or what would a cloth room man know about oiling spinning frames, spoolers and winders?

The overseer or second hand can train up a man in his department and thus make an efficient oiler. The spinning room overseer knows that if he has a man trained in the spinning room, he has an oiler that understands spinning frame lubrication.

H. B. BECKNELL

Editor, Overseers' Round-Table:

The master mechanic should have charge of the oiling for he can then better study the amount and grade of oil required for each type of bearing and the periods when each should be oiled. He can then have the required number of oils and keep them in closed containers in one place. If each department oils its own machines, the oiler will find an open pail and get a supply of oil to save trips. This open pail will stand around, possibly under the bench grinder, and accumulate dirt and grit which of course is harmful to bearings.

If oiling is left to the fixer, he is likely to forget to oil something because, just as he is about to oil a particular place, he is called away and when he returns he has forgotten whether he oiled the place or not. A machine may be oiled every three months when it is overhauled, but there are times when, due to other pressing work, the overhaul is delayed over a much longer period. This is dangerous for the chance taken that bearings may run dry. If one supervisor has charge of all oiling, it may be possible to place oiling on a piece-work basis which will prevent the oiler from wasting too much time and possibly permit the oiler to handle two departments.

HERBERT P. HINCKLEY

Editor, Overseers' Round-Table:

I would not favor the lubrication of all machinery under the supervision of plant mechanic or engineer. There are many parts of machines in various departments which require a little oil every day, which must be done quickly to keep up production. These places could not possibly wait for one or two oilers to get around to them, particularly in cases where oiling has to be done on the doff with the spindle empty.

There should be oilers in each department to keep all machines properly oiled, as the operatives do not have the time now-a-days to attend to all and every part, nor do they have sufficient skill at the job. These oilers should be under the supervision of the overseer. Give the mechanical department charge of lubricating everything up to the machines, but leave the rest to the overseer.

A. COOPER

QUESTIONS AND ANSWERS

Lubricating Silk Warps

Technical Editor:

Will you please let us know what harm, if any, would be done to a raw silk fabric by spraying neats-foot oil on the warp while running in the loom? The silk is not soaked, but is run dry. We find that by making a fine spray over the warp and letting it drop down onto the warp, the oil lubricates the ends as they pass through the harness, making the silk run much better. (8011)

Since neats-foot oil is used as the base of several silk-soaking oils, you should run into no difficulty from using this lubricant in the manner which you mention. It is more usual, however, to soak the warps previous to weaving than to apply the lubricant at the loom. It is the general opinion that better results are obtained by soaking.

We are enclosing herewith a clipping from the September, 1932, issue of *Textile World* which outlines one method which is often employed. You may find that it is not necessary to soak as long as directed in that article, and that a 5 min. soak will give satisfactory results. If the silk is soaked in this manner and dried before winding, and you find that it still requires a lubricant in order to make it run satisfactorily in the looms, you should make a thorough investigation of the silk and the manufacturing operations. It is possible that you will find that the silk is of a poor quality or that it is being split during one of the operations.

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Overbeaten Crepe

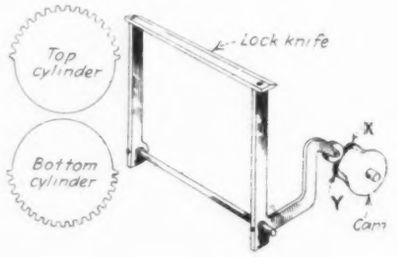
Technical Editor:

We have wide gem heads and are weaving 62-in. cloth at 112 picks. We have trouble with overbeaten cloth. If we put weight on to overcome it, the loom bangs or the head motion jumps time. Please give us your advice. (8016)

Different constructions call for different remedies. As you have not specified the type of 112-pick cloth woven, we shall assume it to be a six-shaft three-thread 13/15 French crepe which shows the least appearance of overbeating. Quite naturally many fixers adopt the unwise policy of piling on more weight to overcome this defect. This gives added weight for the head motion to handle. It will not only cause the motion to jump out of time, but it will also break the teeth off the vibrators.

Before going over all your looms, take one loom and follow these suggestions: Place on the levers about half the weights usually used. Time the lift of the shafts so that they will be level when the reed is 1 in. from front center. Time the head motion so that the cylinder will lift the jacks slowly at the start and then quickly after passing back ½ in. over front center. If only six shafts are used, as mentioned previously, use twelve jacks, two for each shaft. Place on one weight at a time until the right tension is secured.

Overbeating is often the result of improper timing of the head motion, rather than the lack of sufficient weight. We suggest you check your timing by the following procedure: Center the top cylinder as shown in the sketch and set the bottom cylinder in an opposite position. Center the star wheel for the box motion in back of the head straight



up and down. See that the vibrator points are level at the lock knife. At the cam cut off about ⅛ in. as shown by dotted lines at *X* and *Y*. This allows the lock knife to go in quicker and to stay in longer, preventing jumping of the vibrators. See that the lever is at the exact center of the cam between the points *X* and *Y*. When timing the cam, it may be necessary to cut off only one point at *X* or *Y*, about ¼ in., which will place the lever in exact center. Most timing is done with the chain-shaft wheel, which is often referred to as the "red wheel."

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Finishing Gimp Fabric

Technical Editor:

We have been having considerable difficulty with fabrics made from gimp yarns. Our main trouble appears to be streaks which show after the piece is dyed and finished, and also where the gimp is cut in processing. We have been able to detect unevenness in the twist of the yarn; and this to some extent is the fault. We believe, however, that our main trouble is in scouring, dyeing, and finishing. These goods are not fulled, and we have tried every possible method in scouring, with the exception that we have not used an open-width scouring machine. Do you think this would have the desired effect in removing the warp streaks? We are enclosing samples of the fabrics which are causing us trouble. (7943)

No doubt the use of an open full-width washer would be an advantage in processing this class of work. However if you have an open wet-decating machine, and will process the goods on this machine before dyeing, it should help a great deal. Finishers handling this class of work have found that it is advantageous to get the effect of the gimp yarn by first steeping the goods without pressure in large wooden vats or tanks in a solution of alkali until a fair amount of shrinking has taken place to insure the character of finish wanted. Next they extract the surplus liquor, and proceed to crab without weight on the first run. On the second run they add the weight. The goods should be tacked for scouring and dyeing. We believe that wet decating will help considerably in eliminating this trouble; this treatment must take place after the gimp yarn has shrunk to its utmost to get the bouclé effect. This class of work is giving most finishers their share of trouble, but the methods outlined above seem to afford the best results.

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Tar Spots In Fabric

Technical Editor:

We have experienced some trouble with black spots in our cloth, which we assume are due to tar or paint. By proper scouring with a solvent, we can remove the tar, but paint is not moved. We have located the batch containing this tar; but another batch, which should be absolutely free from any material of this sort, after carding, gave the same defect. We thought that the first batch might have deposited some tar on the card clothing and that this tar loosened from the card clothing and blended into the latter batch. There has been some dispute as to the possibility of action of this kind; and we shall appreciate your comments. (7993)

It hardly seems possible that tar would remain in the card clothing in a volume large enough to cause trouble in the finished cloth, providing, of course, that the cards had been thoroughly stripped and cleaned at the completion of the lot in which the tar was present. It is probable also that the stock on the wire would wipe off the tar completely after running a short time, as the wool oil would hold it in a state of suspension.

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Rayon Filling Breaks

Technical Editor:

I am enclosing a quill of 100-denier rayon crepe filling. Will you kindly examine this quill and let me know what causes the yarn to break in weaving. This trouble occurs on many quills of both left and right twist. Also, this filling causes the loom to bang off. (8006)

Our examination of the filling yarn indicates that it is entirely satisfactory. We believe, therefore, that your trouble is caused by improper adjustment of the looms. We assume that there is considerable backlash and rebounding of shuttles; and when this happens, you are bound to have filling breakage. You

QUESTIONS AND ANSWERS

should inspect your shuttles to make certain that the walls are properly lined with a good fur; also run your finger through the fur to make sure that there are no lumps of hard hair due to carelessness in putting the fur in the shuttles.

You state that you are having considerable trouble with looms banging-off; we take it that you mean knocking off from filling motion, due to the fact that the filling flies from under the fork. This sometimes can be avoided by inserting another pin about halfway down the mouth of the shuttle. If this does not stop the knocking-off, we suggest that you cut the wells in the center filling motion a little deeper and extend the fork prongs a little longer. When adjusting the dagger on the filling motion, be sure that when the loom is at bottom center, the dagger just reaches the knock-off.

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Finishing Blankets

Technical Editor:

We are enclosing a sample of a blanket which is constructed and finished as follows: Warp—1920 ends, 87½ in. reed, 42 picks, 16 cut, right twist. Filling—7⅛ cut, right twist, six turns, finished width 72 in. We do not full the blankets; they are washed for about an hour in the soap and then rinsed. They are extracted and given one run on each side on a double-acting napper, dried, given another run on the napper, and then brushed. We find that the nap obtained is too loose and wild.

The nap should be less dense, felted in better to the body of the cloth, and should not ruff up as easily. We shall appreciate any information you can give us as to the methods for obtaining the desired finish.

We have tried reducing the speed of the pile and counter-pile napper rolls to the point where their speed is barely in excess of the speed of the cloth. This procedure pushes the nap back into the cloth to a certain extent, but it does not stay there. (7996)

In order to obtain the finish desired, it will probably be necessary to use a grade lower filling stock than is employed in your sample. The stock selected should not only be of the proper grade and staple, but should also have the maximum crimp or waviness. This not only aids the felting, but supplies the desired loftiness, and at the same time, by better interlocking of the fibers, prevents the "shelling off" of the nap.

If a blanket is desired of the fineness of the sample, but with a finish which will not shell off, it would be better to use a little longer staple in the filling yarn. We suggest that you put through an end; cut it into two parts. Give the first end your regular finishing routine, keeping the temperature in the washer a little higher than normal, which will tend to make a little more felt. Give the other half of the sample a light milling of about 30 min., with trap, watching the width closely to see that it does not run in too much. Wash in the fulling soap, or make a small addition if needed to obtain proper suds. It should not be necessary to cut down the speed on the napper rolls.

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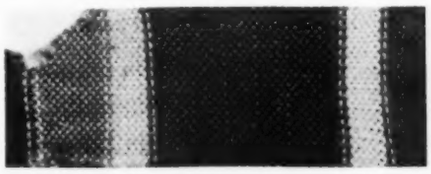
Manufacture of Knitted Fabric

Technical Editor:

We are enclosing a sample of knitted fabric having a stripe. Please advise us



the type of knitting machine on which this fabric was made. (7941)

It is our opinion that this fabric was made on a sinker-top latch-needle machine. As the material consists of two threads of about 2/30 worsted, we suggest that the gage is about 10 needles per inch and not finer than 12 needles per inch. The needle gage would be 24 or 30 with medium hook and narrow cheek. The machine should be equipped with a three-color striper and should be operated with plenty of sinker hold, a tight or short stitch, and a strong pull on the take-up. Yarn should have even tension through separate leaders to assure even delivery to needles, and the fabric should have medium spread in steaming and a good tension lengthwise after spreader.

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Wool Blend on Cotton System

Technical Editor:

Could you suggest to us the best method of using about 50% wool blended with cotton on the cotton system? Also the type of wool, tops, or noils that you think would be most suitable for this operation? (7987)

The finer grades of wool make the more even yarns. The finest grade would of course make the best yarn but would cost the most per pound. We suggest a grade of top of ⅜ blood or higher for a 50% mix to be made into yarns 20s to 40s (cotton counts).

Wool noils are not recommended. They are waste, and the fibers are not even and parallel. It has been reported that a few manufacturers of merino yarns are using re-carded wool noils for their mixes. Generally speaking, wool tops are obtained by those who are making cotton and wool mixes for cotton processes.

The first step is to cut the wool while in sliver form into a suitable staple length—generally 1⅛ in. The cotton to be used with this wool will of course have a staple length approximately the same. There are a number of machines that can be used for cutting the wool. These vary in price from approximately $160 to $1,600. The cheapest machine was not originally designed for this purpose and has to be altered slightly in order to obtain the right relation of speeds between feed roll and knives. It operates on the same principle as a lawn mower. A machine has been especially built for the purpose. After the wool is cut to staple length, it has to be mixed with the cotton.

It is recommended that cotton to be mixed with the wool go through extra opening and cleaning machines and processes. Providing the cotton has gone through this extra treatment, it can be mixed with the wool either by hand or in hoppers or feeders. If the cotton has received the extra processing, sheet metal should be used to cover all spacing between the grid and cleaning bars in the picking processes. Two processes of pickers are suggested.

At the card, blank screens should be used. Flats should be raised more than 12/1000s to approximately 20/1000s, and the speed of the flats should be reduced. A continuous stripper or fancy roll is a valuable attachment on the card. Coarse-wire card clothing gives the best results, but is not essential. Settings at drawing, roving, and spinning processes may have to be slightly wider than for regular 100% cotton of the same staple. This will depend on the present weighting of rolls and the diameter of the wool fibers. Twists may have to be increased, depending on the characteristics desired in the yarn, the condition of the machines, and the humidification.

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Specks in Knitted Fabrics

Technical Editor:

I am inclosing herewith a sample of knitted fabrics made from a 2/30/7s bleached yarn. I shall appreciate your opinion as to the cause of the black specks or stains. (7948)

We find that there are two distinct types of black specks or spots. One of these is caused by the presence of black or brown hairs in the yarn; and the other by extra stock getting on the roving, or perhaps through careless carding of the stock. These latter spots are of a yellowish cast and have the appearance of being oily. They are on the single yarn, and not on the plies. Incidentally, the entire fabric has a yellow cast, indicating that the scouring operation was not properly carried out. If you will unravel some of the fabric, untwist the yarn, and paste it on a cardboard, the cause of the various defects will become apparent. That is, you will be able to see the black and brown fibers, the oily lumps, and the lengths of yarn which have a distinct yellowish tinge.

NEW PUBLICATIONS

TEXTILE RECORDER YEAR BOOK, 1933; Edited by John Brooks; published by John Heywood Ltd., 121 Deansgate, Manchester, England. Price 8/6.

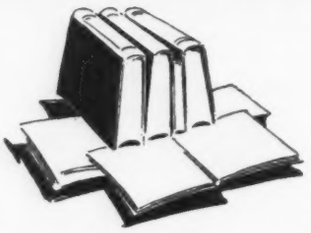
In the present volume of this year-book the knitting section has been re-written to give data on modern fine-gage machines and other recent developments. New tables for production of Nasmith combs and revised settings for these machines have been included. Other additions are new sections on high-speed winding and warping, use of large sliver cans in jute spinning, etc. All statistical data and tables of production have been brought up-to-date.

NEUERE SULFONIERUNGSVERFAHREN, by Dr. von der Werth; Allgemeiner Industrie-Verlag, Berlin, Germany. Price Rm. 4.80.

This bibliography of recent United States, British, French, and German patents on the sulphonation of fats, oils, aromatics, etc., is of interest to those who wish to keep posted on the latest developments in the manufacture of sulphonated compounds.

MECHANICAL POWER TRANSMISSION FROM MOTOR DRIVE TO INDUSTRY, by Robert W. Drake; American Leather Belting Asociation, 41 Park Row, New York. Price $4.

This publication consists of 50 weekly reports, one report to be mailed each week, on the transmission of power, particularly



by belt drive. Subjects covered by these reports include load fluctuations, torque, sizing of motor belts, short-center drives, individual and group drives. etc. Reports are written for millwrights, maintenance men, plant executives, and distributors of mechanical and electrical power-transmission equipment.

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Business Literature

Valves and Piping, Crane Co., Chicago. Deals with waste born of retrenchment policies and discusses new designs, materials, and methods for cutting operating and maintenance costs for conveying steam, water, and other gases and liquids.

Temperature Regulators. Atlas Valve Co., Newark, N. J. Booklet describing four models of self-contained vapor types of temperature regulators for liquids.

Motors. General Electric Co., Schenectady, N. Y. Circular describing totally enclosed, ball-bearing, squirrel-cage induction type motor.

Welding. General Electric Co., Schenectady, N. Y. Catalog of welding electrodes and accessories, including engineering data.

Belting. The B. F. Goodrich Co., Akron, O. Illustrated booklet on "Highflex" transmission belting.

Throwing. Laurel Soap Mfg. Co., Inc., Philadelphia. Pamphlet containing suggestions for the silk and rayon throwster.

Pumps. Worthington Pump & Machinery Corp., Harrison, N. J. Various bulletins describing direct acting steam pumps for general services, handling oils, and for condensate return service.

Combustion Control. L. J. Wing Mfg. Co., New York. Bulletin No. M-56, entitled "Better Heating from Low Cost Coal with a Wing Combustion Control System."

Motors. General Electric Co., Schenectady, N. Y. Illustrated booklet describing synchronous motors in various sizes for different industrial installations.

Dyestuffs. General Dyestuff Corp., New York. Color card showing popular shades on dress goods with white silk effects.

Dyestuffs. General Dyestuff Corp., New York. Color card showing prints of all the existing "rapidogen" dyestuffs on cotton and cotton-rayon mixtures produced with the aid of the acid-pad and the acid fumes process.

Motor Pulley. Reeves Pulley Co., Columbus, Ind. Catalog No. V-200 containing engineering data, illustrations of typical installations and descriptions of the Vari-Speed motor pulleys.

Meters. Worthington Pump & Machinery Corp., Harrison, N. J. Bulletin describing improved cold water disc meters.

Meters. The Brown Instrument Co., Philadelphia, Pa. Circular announcing an improved mechanical flow meter for measuring steam, air, oil, gas, water and other fluids

BUSINESS NEWS

Jacob K. Altemus, Philadelphia, has announced the affiliation of his organization with the Fidelity Machine Co., Philadelphia. All parts inventory, patterns, drawings, etc., relating to the Altemus products including the winders have been moved to the Fidelity plant. Webster Reeser, Altemus designer and service man for the last 12 years is to continue his service with Fidelity.

A. W. Buhlmann, Inc., textile engineering, is now located at 551 Fifth Ave., New York, having moved from 200 Fifth Ave. on May 1. The organization has lately been incorporated. Mr. Buhlmann has been in business since 1904 and the announcement of his new location included a list of textile milestones over the last 30 years with which his firm was associated.

Albert Gee, inventor, who has been associated for many years with Hancock Knitting Mills, Philadelphia (most recently as vice-president and general manager), is offering his services in a consulting capacity to full-fashioned hosiery mills. Mr. Gee is credited with, among many inventions, the first important patent on lace hosiery, granted June 24, 1902, and with the origination of the Proctor traversing boarder. Before coming to this country in 1893, he was employed by Cotton's original machine company, Leicestershire, England, the first builder of full-fashioned equipment.

Glyco Products Co., Inc., Brooklyn, N. Y., has appointed C. M. Durbin Co., Cincinnati, agents for Cincinnati.

Scott & Williams, Laconia, N. H., knitting machine builders, are transferring the Standard Trump Bros. knitting machine plant from Wilmington, Del., to Laconia. A number of specially trained men will also be transferred.

Paramount Textile Machinery Co., hosiery drying forms, inspection machines and looper attachments, has moved its Chicago office to 538 South Wells St. from the former location at Madison and Market Sts.

George Moran, former chief chemist of the Pacific Print Works, Lawrence, Mass., has joined the Sales Technical Service Division of the Calco Chemical Co., Inc., replacing C. A. Funke, resigned. Mr. Moran will direct the technical service in printing and dyeing of Calco fast colors.

Herrick & Voigt, gums, sulphonated oils, etc., have removed their New York office from 220 East 42d St., to 21 West St.

Fred Schaefer has taken over the Phoenix Testing Laboratory, formerly a department of the Phoenix Silk Manufacturing Co. Mr. Schaefer has managed the laboratory for the last 11 years. It is located at 166 East 27th St., New York, and is equipped to conduct quality tests on raw and thrown silk and rayon.

I. F. Laucks, Inc., Bloomington, Ill., makers of Lauxein water-resistant glue for plywood box manufacture, have purchased the plant of the Old Dominion Table Works, Port Norfolk, Va. The Bloomington plant will be moved to this new location.

E. I. DuPont de Nemours & Co. has established southern distributing offices in Charlotte, N. C., with R. M. Levy in charge for the sale of various chemicals, principally to textile mills.

Ultra Chemical Works, Inc., now located in Hawthorne, N. J., will remove to a larger plant at Wood and Shady Sts., Paterson, N. J., according to announcement by William H. Spuhler, president. The new plant, containing 75,000 sq.ft. floor space, will be used for the manufacture of textile oils, sizes, etc.

Stein-Brill Corp., machinery and equipment dealers, is moving its offices and warehouse from Jersey City to 183 Varick St., New York.

Monsanto Chemical Works, St. Louis, has purchased controlling interest in the Swann Corp., Birmingham, Ala., for approximately $600,000. The Swann Corp. manufactures phosphoric acid derivatives used in the manufacture of silk.

H. M. McCord has added O. B. Graichen to his organization to head the recently established service department. Mr. Graichen was formerly with Lockwood, Greene Engineers, Inc.

L. B. Jordan, sales manager of the Jordan Division of the U S Bobbin & Shuttle Co., with headquarters in Charlotte, N. C., has returned to Monticello, Ga., and will continue his duties as sales manager with headquarters there.

A. Chester Hamilton, Charleston, S. C., has been made advertising and merchandising manager of the Sonoco Products Co., Hartsville, S. C., makers of paper cones and tubes.

Knitting Week

AT PHILADELPHIA DOMINATED BY EVENTS AT CAPITOL

ALTHOUGH Philadelphia is some 150 miles from Washington, we distinctly recognized the shadow of the dome of the national Capitol in the Philadelphia Commercial Museum where the Knitting Arts Exhibition and the convention of the National Association of Hosiery Manufacturers were held during the last week of April.

This apparent phenomenon is explained by the fact that, while these two events were in progress, Washington was debating legislation which might radically alter the future of the hosiery industry and of every other industry in the country. As a result, the farm bill, the bill to regulate industry, and the various inflationary proposals, were the dominant topics of conversation in every booth in the exhibition hall, and formed the major theme of the convention.

The term "shadow" is not quite appropriate, as it might be construed exclusively in its more ominous sense. While grave concern was expressed over the possible effects of some of the legislation if carried to the extremes proposed, there was also a wide-spread conviction that the dead-lock of the last few years had been broken and that the knitting industry was set to go ahead at last. This was reflected in the active interest shown by mill executives in the equipment and accessories on display. Talk of the depression was more definitely in the past tense than at any of the exhibitions of recent years. Incidentally, it is interesting to note that space occupied by exhibitors was only 6% less than last year. Most manufacturers would gloat over such a trend in their own businesses.

Naturally, the discussion of pending legislation centered primarily on the Administration's bill to regulate industry. The climax was reached in the unanimous adoption of a resolution putting the association on record as "not unsympathetic" with the objectives of the measure but expressing the opinion that the provisions were extreme and unworkable, and urging the inclusion of a definite time-limit in such an emergency type of legislation. The resolution further stated that the measure finally adopted should be of a character which would not curtail the initiative of industry but would rather place upon industry itself the responsibility for carrying out its provisions, subject of course to such governmental checks as might be necessary to protect the public interest.

In discussing this subject, William Meyers, president of the association, remarked that industry had shown a disposition to accept any reasonable regulatory legislation necessary during the period of the emergency but that the Administration's bill "almost abused" this disposition because it would rest in the hands of an inexperienced bureaucracy the supervision and control of industrial operations, "the closest parallel to which is that which exists in Russia."

"I doubt that the American people, as well as American industry, will accept government operation of industry, or that their representatives in Congress will subscribe to it."

In the course of his address, Mr. Meyer revealed that the Federal Trade Commission is planning a general trade practice conference for the hosiery industry this fall, and that the cooperation of the association will be welcomed in the preparation of the tentative rules and practices.

A record of promises performed was outlined by Earl Constantine, managing director, in one of his characteristically forceful talks. He reported that:

1. The plan to prepare a simple manual of cost accounting was almost completed, the manual having reached the printer's proof stage.

2. The proposal for a reporting service on production statistics had been deferred, because of chaotic conditions in industry, but meanwhile the association had worked in the direction of conferring with the Bureau of the Census with the idea of changing the character of the Bureau's reports to conform more closely to the type of information really

sought by mills, and of reducing the spread of time between receipt and release of the figures.

3. The association had been cooperating with the Silk Association in the reconsideration of the rules and regulations governing the sale of silk.

4. The scrapping of obsolete equipment had been encouraged by the association, and in fact, as the result of one particular effort in which the organization participated, 160 full-fashioned hosiery machines had been acquired and scrapped at a net cost of only $20,000.

In addition, Mr. Constantine vigorously assailed the practice whereby the industry builds its price structure twice a year and then deliberately turns around and destroys it. He also struck out at the trend, in certain quarters, toward mis-labeling, remarking that there is no place for this practice in a respectable industry.

Other important developments of the convention included the amendment of the by-laws to restrict the association's activities to the hosiery industry alone, and to change its name accordingly; the report of Ernest Blood, treasurer, showing an excess of receipts over expenses of $819; and the reporting of the results of a preferential vote which revealed 77% of the membership opposed to the Black bill, and 23% in favor. This same vote recorded order of preference on five alternative plans for restricting production. First choice was for a two-weeks' shutdown in the December-January period and again in the June-July period, each mill to select its own two weeks; second, a fixed period shutdown in January and again in July; third, elimination of Saturday operation; fourth, limitation of each plant's operation to not more than 18 hours a day; and last choice, elimination of night work.

That the human equation involved in the seriplane test for silk renders the test insufficiently accurate for hosiery purposes was one of the conclusions reported by the raw-silk classification committee in its second progress report. Nearly 1,000 doz. stockings have now been knitted from silk tested by various methods, particularly by the nine-meter test; and the results have been compared. The relative importance of evenness, cleanness, and neatness is being studied, and a machine is under construction for grading stockings as firsts and seconds. Modifications are being proposed in raw-silk classification rules, and a new joint committee has been established embodying representatives from the hosiery and silk associations and the Raw Silk Exchange.

The National Association of Hosiery Manufacturers elected the following officers: President, William Meyer, Apex Hosiery Co.; 1st vice-president, Grover C. Good, Globe Knitting Works; 2nd vice-president, R. C. Aycock, Aycock Hosiery Mills; treasurer, Ernest Blood, John Blood & Co. The following directors were chosen for a two-year term: William H. Gosch, Nolde & Horst Co.; James G. Hanes, Hanes Hosiery Mills Co.; Roy E. Tilles, Gotham Silk Hosiery Co.; H. L. Van Praag, Julius Kayser & Co. The following four directors' terms continue: John H. Brine, Rollins Hosiery Mills; Joseph Haines, Jr., Haines Hosiery Mills; C. S. Kincaid, Magnet Mills; W. H. May, May Hosiery Mills.

New Equipment Exhibited

The largest crowds at the exhibition were found, as had been expected, around the single-head or single-section full-fashioned hosiery machines. These new machines, which stand in the path of the trend toward an increasing number of sections per machine, were a fertile subject of curiosity and controversy. They have been described in detail in TEXTILE WORLD (Feb. 14, p. 76).

Similar discussion was engaged in by those visitors to the show who were transported at the invitation of one exhibitor to the Marnet Hosiery Mill, Inc., where the new German single-unit full-fashioned hosiery machine, recently introduced to this country, was in operation. This machine works on the principle of a split needle bed, the instep needles being raised and swung out of action while the heel flaps are knitted. Although topping is eliminated, the heel flaps must be looped to the sole fabric when the blanks are removed from the machine. The object is mainly to eliminate differences in shade between leg and foot, in a manner which retains the heel appearance of the regular full-fashioned stocking, rather than to reduce labor costs. A new lace attachment on this machine has large design capacity. Other details have been described in TEXTILE WORLD (Jan., p. 90). Also of interest to full-fashioned men was a new German legger operating at high speed with low vibration (*T.W.*, Nov., 1932, p. 109).

Announcement was made at the show of the following improvements in a well-known American-built machine: air-cushion brake for camshaft, balancing cams for insuring uniform operation of camshaft, inside splicing rocker for improving elasticity at juncture between heel and instep and simplifying topping-on, more efficient coulier motion, safety release for narrowing lifter shaft, safety stop for take-up, safety drive mechanism on handwheel shaft, positive shock absorber for main carrier rod, and versatile lace clock.

Of interest in the equipment exhibited for circular hosiery were the square heel and women's loose-welt attachments. (*T.W.*, Dec., 1932, p. 106). Exhibited for the first time was a machine combining 12-step reverse plating with the universal stitch—the latter suitable for mesh, float, and

General view of Knitting Arts Exhibition, looking down central aisle. The space occupied by exhibitors was only 6% below 1932. Interest was lively and many new devices and attachments were shown for the first time.

mock wrap (*T.W.*, Dec., 1932, p. 107). Entirely new was the application of the transferred eyelet principle as employed on underwear machinery to the production of lace clocks on fine-gaged women's hosiery.

The design capacity of wrap machines has been radically increased since last year's show, it was noted; and the ability to knit a color within a color has been developed in many of these machines. The 80-individual-needle-wrap machine, first exhibited at last year's show, has been developed further and made available to the trade. The wrap head on this machine can be tilted back for a clear view of the fabric; and with the head so tilted, the machine can run plain.

The gusset-toe feature has been extended to a wide range of machines. A new five-color yarn changer, welt and draw-thread attachment, tipping attachment, and plating device have been applied to an English rib-hosiery machine. Another English ribber has been equipped with a plating device giving a contrast between cylinder and rib stitches. Rumors were heard that a new two-feed hosiery machine, giving reverse plating at both feeds and affording a one-third increase in production would shortly be placed on the market. An automatic double-sole cutter has been applied to a line of 70-gage infants' hosiery machines. Several machines in the exhibit were knitting the new Scotch plaids. A new half-hose development is the attaching of a washable flat-braided Lastex garter to the top, this having the advantage over the so-called "garter-top" of fitting various leg lengths.

The looper introduced at last year's show, for applying rib tops to half hose, in order that hosiery may be knitted continuously in string formation, has been equipped with a trimmer for removing the finger-hold fabric, thus eliminating raveling back and increasing production by over 25%.

Outstanding among the circular outerwear and underwear machines was the new circular jacquard links-and-links machine, the first of its kind (*T.W.*, March, 1933, p. 46 and 76). Also of interest was the 26-in., 32-feed jersey machine equipped for "free wheeling" (*T.W.*, March, 1933, p. 46).

A new 24-cut rib machine, with 70-gage latch-needle cylinder, spring-needle dial, and ingenious sinker arrangement for measuring the stitch, was producing a fine, 75-denier rayon fabric of unusual elasticity. The dial of this machine is gear-driven, in order that dog marks may be avoided. An American-built seamless-hat machine was demonstrated, operating on a reciprocating principle and requiring only one looping. Announcement was made at the show of a new multiple-feed latch-needle machine having large design capacity and several new features. Other items of interest to this field included a spring-needle presser with replaceable jacks requiring no cutting, new four-color yarn changers (*T.W.*, March, p. 46), and several ingenious electrical and mechanical stop motions. A flat links-and-links machine boasted an extended range of pattern work.

In the small-ribber department a new machine was equipped with an ingenious needle permitting transferring of the stitch from the cylinder to the dial, giving various lace effects with open eyelets. The size of the eyelet can be varied by tucking. Another ribber was employing a yarn changer to give a continuous feed consecutively from five bobbins, in order that bobbins could be replaced one-fifth as often.

On a silk type of skein-to-bobbin winder was demonstrated the type of constant-yarn-speed take-up roll employed on silk twisters, but equipped with a stop motion which swings the bobbin away from the roll when snarls are encountered. Doubler-twisters were exhibited with double 2-in. feed rolls on some spindles for heavy deniers, ball-bearing separator rolls on others, double-wound two-speed motors for versatility, and spindles of large oil capacity (*T.W.*, June, 1932, p. 99; Sept., 1932, p. 112; Feb., p. 77; Mar., p. 75). New travelers and rings were demonstrated (*T.W.*, Dec., 1932, p. 106; Mar., p. 75), and also a new adjustable magnetic tool for applying travelers of various sizes to the rings. Silk and rayon twisters were shown equipped with ball bearings, positively aligned bevel gears, vibration-reduced drives, and pressure lubrication (some features, *T.W.*, Aug., 1932, p. 99; Mar., p. 75). A new holder shown for the receiving bobbins on twisters is designed to press the bobbins against the take-up drum with increasing force as the tension on the yarn increases, in order that slipping may be avoided. New Pyrex and Bakelite double-head steaming bobbins were exhibited (*T.W.*, Aug., 1932, p. 113). Cones with reduced angle at top and bottom, permitting an increase of ¼ lb. in the package and eliminating danger of yarn slippage in packing, were produced by modifications on a well-known coner. A new winder producing a 22-lb. cone of 8/3 cotton carpet yarn, the largest cone commercially made, was demonstrated at the show. Knitting cones were being moistened in a few seconds by a novel pressure machine.

Improved sewing machinery shown this year demonstrated

Wm. Meyer, reelected president, Natl. Assn. of Hosiery Mfrs.

Ernest Blood, reelected treasurer of hosiery association

Earl Constantine, managing director of the association

the advances made in the direction of high-speed operation without impairment of quality. This was noted in several types of overseaming and overedging machines, buttonhole machines, plain stitch machines, a fagoting and picoting machine, a machine for facing underwear, a combined lockstitch and pinking machine with intermitten yolk ruffler, etc.

Among the more recent developments in processing equipment were included two new types of piece dyeing machines, a vertical steaming and finishing machine for tubular knit goods, hosiery boarding and inspecting equipment of improved design, and a multiple collarette cutting and winding machine designed to cut a number of spiral strips of one or more widths from tubular fabrics. One of the piece dyeing machines is constructed of a corrosion-resisting material produced by combining an asbestos base with a phenol-formaldehyde resin and molding into a compact mass. Advantages of this material include its resistance to acids, inertness towards dyestuffs, and low coefficient of heat conductivity (*T.W.*, Jan., 1933, p. 88). The other type of piece dyeing equipment, which was shown in three sizes, enables scouring, fulling, and dyeing to be carried out in one machine. Intended primarily for the processing of tubular knit goods, these machines are of corrosion-resisting metal construction throughout. A unique feature of this equipment is a unit of three rolls—two lying in a horizontal plane, and the third, or upper roll, moving up and down in a vertical plane. In scouring and fulling, the upper roll rides in the trough formed by the lower rolls, coming in contact with the cloth at two points and forcing it to bend. This bending is said to reduce scouring time by one-third and to permit fulling of light-weight woolens and worsteds. When the top roll is not required, as in the dyeing operation, it may be raised by a handle outside the tub.

There were displayed also a laboratory-size package dyeing machine, new models of the skein dyeing machine shown first at the 1931 show, and a hosiery dyeing machine equipped with an improved control device for reversing the direction of the cylinder.

Embodied in the vertical drying, steaming, and finishing machine for tubular knit goods is a hot metal dome over which the fabric is drawn. Dry steam is ejected from the lower part of the dome, and forced through the fabric. After steaming, the goods immediately come in contact with the upper part of the hot dome, thus setting the fabric (*T.W.*, Nov., 1932, p. 110). Also was shown a new horizontal steaming and tentering machine for flat-knit fabrics, as well as circular-knit fabrics which show a tendency to curl, roll, or distort. This equipment, which consists of a steam box, chain, tenter, and rolling device, is easily adjusted to width.

An innovation in hosiery finishing equipment was a machine comprised of twelve forms mounted with their drying surfaces parallel and closely adjacent. In their drying position the forms are maintained in a vertical plane; an electric drive lowers the forms to their boarding and stripping position and returns them to the drying position. When all forms contain stockings, and are in a drying position, the operator by touching a foot control causes two forms to move down to the stripping position. Both stockings are removed in one operation, and pressure on the foot control causes one of the bare forms to return to the drying position while the operator places a stocking on the form remaining down. This charged form, upon return to the drying position, automatically brings down the other bare form. Return of this form properly charged with a stocking simultaneously brings two more forms in position for stripping, and the cycle is repeated. The steam-heated forms employed in this equipment are themselves of new construction which permits two temperatures—one for light-weight, and the other for service-weight hosiery. Among the advantages cited for this new machine are high production and quality and low operating costs.

Other improvements in hosiery drying and finishing apparatus included a special base which allows rapid change of forms on the drying table; a variable-heat form of the steam type and one of the electric type, each equipped with an air-cooling arrangement; and a new inspection form with mirror attachment which eliminates turning of the form.

Power-transmission equipment of recent development included a gear motor for textile mills (*T.W.*, July, 1932, p. 98), a demand limitor for electric or steam service, and several new types of belting. The demand limitor, which is applicable to any graphic demand meter, utilizes a photo-electric cell, sensitive relay, amplifying system, and external-load relay to interrupt any desired part of a steam or electric supply system whenever the demand load is reached. In this way, peaks are reduced, with a consequent saving in the cost of purchased steam or electricity. Of the new types of belting displayed one has a non-skid surface produced by indenting part of the surface (*T.W.*, Jan., 1933, p. 90); another, an endless-woven fabric belt, is designed for high speeds and light loads; and a third is a round leather belt made by an improved tanning process said to give good pliability and little stretch.

(Continued on page 109)

ADVERTISING PAGES REMOVED

THE PERSONAL PAGE

Leonard S. Chace has been appointed treasurer and general manager of the Lawton Mills Corp., Plainfield, Conn. Mr. Chace has been with the Berkshire Fine Spinning Associates since 1930 and was formerly treasurer of the Parker Mills, Fall River.

William A. Struthers, former vice-president and secretary of Strutwear Knitting Co., Minneapolis, Minn., has been elected president of the company to succeed **James A. Struthers** who died April 16. **Warren E. Lawyer,** assistant secretary, was made secretary.

M. B. White, of Thomasville, N. C., has been elected president of the Pickwick Hosiery Mills of that city.

Leo Propper, president of Propper-McCallum Hosiery Co., New York, has resigned. **Sam Kahn,** vice-president, will assume his duties pending an election.

Walter M. Williams has been elected secretary and treasurer of the Virginia Cotton Mills, Swepsonville, N. C., but will continue as secretary and assistant-treasurer of the E. M. Holt Plaid Mills, Burlington, N. C. **Lynn B. Williamson** has been elected executive vice-president of Virginia Cotton Mills.

T. H. Webb, president, Locke Cotton Mills Co., Concord, N. C., has been elected to the board of governors of the Cotton Manufacturers Association of North Carolina, to fill the vacancy created by the election of **R. Grady Rankin,** of Gastonia, N. C., to the vice-presidency at the last annual meeting.

David F. Edwards, president of Saco-Lowell Shops, Boston, Mass., has been re-elected a director of the Chamber of Commerce of the United States.

Frederick H. Bishop, vice-president of the Universal Winding Co., Boston, was elected commander of the Massachusetts Department of the Grand Army of the Republic at its annual encampment.

William T. Dunn was elected president of the Dunn Woolen Co., Bunker Hill, W. Va., and **George E. Slaybaugh** was elected treasurer, following the death of the founder of the company.

W. B. Rhyne has resigned as secretary and treasurer of the Cherryville (N. C.) Mfg. Co., Howell Mfg. Co., and Wildan Mfg. Co., all located in Cherryville. These mills are now operated by **W. W. Glenn,** of Lincolnton, N. C., general manager of the D. E. Rhyne estate.

William Batchelder, treasurer and general manager of the Goodall Worsted Co., Sanford, Me., has resigned to devote more time to his personal affairs. He was with the company 43 years.

Walter L. Weil has been elected a vice-president of Commercial Factors Corp. Mr. Weil has been associated with the company as assistant vice-president since April, 1932, supervising the activity of the factoring company's rayon and silk accounts, and has been in the textile business for 27 years.

George Fish, of Charlotte, N. C., who has been associated with **Carl A. Rudisill,** of Cherryville, N. C., in the management of several combed yarn mills, has been appointed agent and general manager of Green River Mills, Inc., Tuxedo, N. C., and Pisgah Mills, Inc., Brevard, N. C., succeeding **W. M. Sherard,** who recently resigned.

L. W. Robert, Jr., head of the firm of Robert & Co., Inc., Atlanta, Ga., industrial engineers, who was recently appointed Assistant Secretary of the Treasury.

Dudleigh C. Collins has resigned as vice-president and treasurer of the Pioneer Mills, Guthrie, Okla.

T. L. Lewis has resigned as superintendent of Edna Mills Corp., Reidsville, N. C., effective May 1.

W. H. Glenn has been promoted from overseer of spinning to superintendent of the Whitney (S. C.) Mfg. Co., succeeding **W. A. L. Sibley,** who recently resigned to become assistant to the general manager of Ware Shoals (S. C.) Mfg. Co.

George C. Prest, agent of the Suncook (N. H.) Mills since 1914, has resigned. His duties will be taken over by **J. L. Weld,** treasurer and general manager.

Gordon Lodge has been appointed superintendent of wet and dry finishing at the Stevens Mills of M. T. Stevens & Sons Co., North Andover, Mass., succeeding **W. C. Harmon.**

J. E. Garvin recently resigned as superintendent of the Ladlassie plant of Gossett Mills, Anderson, S. C., to accept a similar position with the rayon weaving plant of Dilling Cotton Mills, Kings Mountain, N. C.

Joseph A. Clapp, former agent of the Prospect Mill of the American Woolen Co., Lawrence, Mass., has severed his connection with the company.

Fred King has been promoted to the position of superintendent of the dyeing and finishing units of the Stillwater Worsted Mills at Goshen, Va., succeeding **David Welsh** who resigned.

J. Lawrence Ivers is now superintendent of the colored goods division of the Meritas Mills, Columbus, Ga. He was formerly superintendent of the Renfrew Mfg. Co., North Adams, Mass., and also recently associated with the Newmarket (N. H.) Mfg. Co.

Robert O. Branch has been appointed general superintendent of finishing departments of the American Thread Co., Willimantic, Conn., with jurisdiction over departments in Holyoke and Fall River, Mass.

Percy J. Arran has resigned as overseer of finishing at the Springville plant of the Hockanum Mills Co., Rockville, Conn., to accept a similar position with the Slingsby Mfg. Co., Brantford, Ont., Canada.

George R. Dugan, for four years stylist with New York office of Hamilton Woolen Co., has been made assistant to the president, **Richard Lennihan.**

J. O. Williams, formerly general superintendent of Pisgah Mills, Inc., and Green River Mills, Inc., Tuxedo, N. C., has been appointed superintendent of Gastonia (N. C.) Thread Mills, Inc., succeeding **W. P. Wingate** who died recently.

Obituary

Arthur Lyman, aged 72, died at his home in Waltham, Mass., on April 9. Mr. Lyman was president and a director of the Dwight Mfg. Co. and of the Whittenton Mills, and a director of the Pacific Mills. A few months ago he retired as president and a director of the Merrimack Mfg. Co. Until recent years he was also president and a director of the Fisher Mfg. Co. and of the Winthrop Mills and at various times connected with other textile properties.

F. J. Pike, aged 72, vice-president of Dunson Cotton Mills, LaGrange, Ga., died recently at his home in that city.

Ferdinand A. Kuhn, aged 68, for 40 years a director of the Botany Worsted Mills and for 10 years a vice-president, died April 18 in New York.

J. Marion Davis, aged 62, superintendent of the Newberry (S. C.) Cotton Mills, died April 14.

W. P. Wingate, superintendent, Gastonia (N. C.) Thread Mills, Inc., formerly the Clara Mills, died April 6.

Walter L. Gunther of the David Gessner Co., Worcester, Mass., died suddenly at his office on April 3.

Norman F. Thompson, Jr., aged 49, died in the New Haven, Conn., hospital on April 2. He was formerly president of the Burson Knitting Co., Rockford, Ill., and at the time of his death was a director of Winsted Hosiery Co.

Edward A. Smith, aged 70, Kings Mountain, N. C., founder of Chadwick-Hoskins Mills, but since 1915 president of the Phenix Mills Co., died in a Charlotte hospital, April 30.

Robert H. Hood, former president and founder in 1885 of R. H. Hood Co., comb circles and fallers for worsted, Philadelphia, died May 1.

NEW MACHINERY

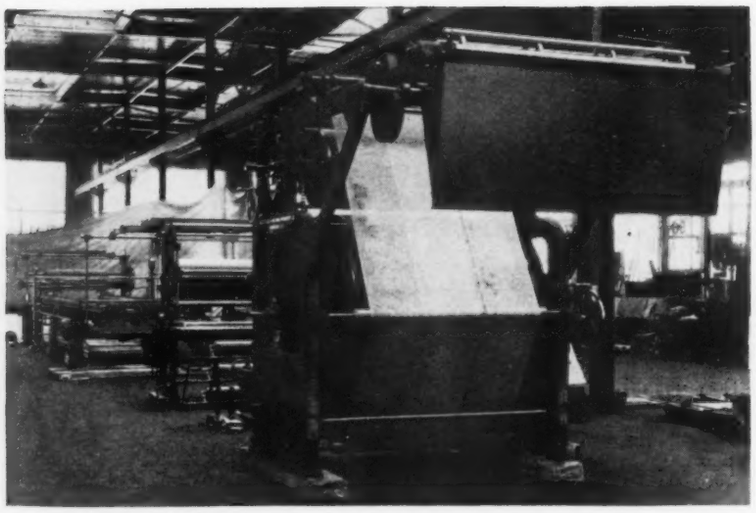


Fig. 1

Sanforizing Range

The Universal Sanforizing Range, the latest equipment for pre-shrinking fabrics, has been placed on the market recently by The Textile-Finishing Machinery Co., Providence, R. I., one of the machinery builders licensed by Cluett, Peabody & Co., Inc., to manufacture equipment employed in the Sanforizing process. This new unit, which permits controlled pre-shrinkage of both warp and filling, embodies a number of refinements not found in older models. The range is built complete, including the following sections: feeding-in section, tenter section (includes both water and steam sprays), draw-roll section, moistening section, and Palmer section. All sections can be operated in synchrony; or, as is desirable in certain cases, merely by throwing a clutch, the last three sections can be run as a separate unit with an auxiliary motor.

The tenter follows closely in design the patented automatic straightaway tenter brought out by The Textile-Finishing Machinery Co. a few months ago and described in the December, 1932, issue of TEXTILE WORLD. Integral with the tenter, however, are the variable-speed-controlled feed rolls required on Sanforizing equipment; Schwartz electric cloth guiders are standard equipment. Among the major improvements on the tentering section are patented devices for giving automatic tension on the chains and for adjusting this tension without tools, totally enclosed driveshaft and gears, pin clips protected by metal guards, doffers for pin clips driven by independent motors, automatic shut-off for steam and water sprays, and motor-driving mechanism with pushbutton control to adjust chain rails for various widths of cloth.

The distance between the tenter and draw roll section has been lengthened to provide sufficient space for a truck to be moved about freely. Overhead is a tension-control rigging of steel construction. The compensator in this section is of an improved design, sturdy in construction, yet finely balanced, which responds promptly at all times to maintain equalization of feed-roll speeds.

One of the outstanding improvements found on the Palmer is the automatic lifting attachment on the electric ironing shoes. It is provided with a broad range of adjustments to compensate adequately for the over-run of the fabric caused from the cylinder coasting after the electric current is shut off from the range. This device is immediately set in motion when the motor switch is thrown out, but is controlled in its delay from swinging the ironing shoes away from the face of the fabric until the steel cylinder has come to a full stop. Other innovations that have been built into the Palmer, which is of the jacketed cylinder type, include tell-tale signal lights, which indicate whether or not current is on the heating shoes; an improved blanket-tension device; ground finish on both steel cylinders and the nineteen blanket rolls; and a smooth running plaiter of new design.

General features of the range include totally-enclosed gear-change boxes for control of shrinkage; Reeves variable-speed transmission, giving cloth speeds from 18 to 90 yd. per minute; Allis-Chalmers motor for operating complete range; all driving parts supported by SKF ball-bearings, and Alemite lubrication system throughout. Fig. 1 shows the complete range viewed from the Palmer end; Fig. 2 is a close-up of the first feeding-in section.

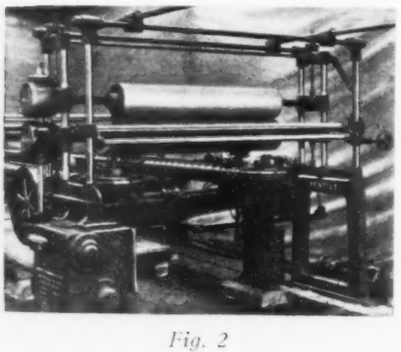


Fig. 2

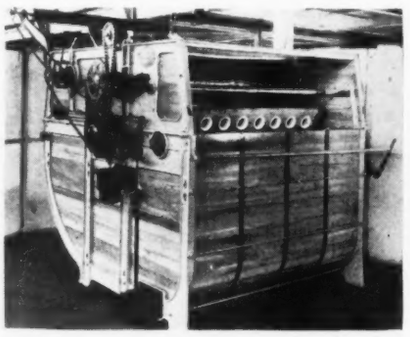
Fully Automatic Water Softener

THE Permutit Co., 440 Fourth Avenue, New York, has announced the development of a fully automatic industrial zeolite water softener which is claimed to eliminate errors due to the human element. It is said that by a clever combination of a meter operated switch and electric controls with a motor driven Permutit single valve, each operation of the water softener is conducted under precise control, resulting in the highest efficiency.

Cloth Washer

THE new Model "K" cloth washer introduced by James Hunter Machine Co., North Adams, Mass., is designed to permit faster and more gentle handling of cloth and to obtain more uniform scouring. This washer is shallower and wider from front to back than previous types, and the manufacturers claim that it affords greater capacity per foot of length, and a freer circulation of liquor. It is said also to give a more open and loose condition of goods while being processed. The suds box is solid throughout, with no gates in the bottom, but with a rubber packed disc valve at the end to provide drainage. There is a new type sheet-spray manifold located before the nip of the rolls and running the entire width of the machine. The slotted water-supply pipe runs the full width of the back and curved side of the washer.

Miscellaneous features in the design of this machine include tongued and grooved cypress lining for sides, quarters and bottoms, anti-friction bearings throughout, Alemite-Zerk lubrication, roller chain and sprocket drive for top roll, friction clutch or pulley for main drive, main rolls (19½-



in. diameter) of rock maple, whip and delivery rolls of solid oak. Top roll is carried in levers turning on a fulcrum at one end. At the other end is attached a coil spring through which pressure is applied to the top roll.

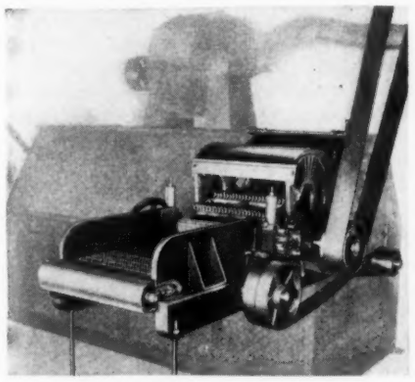
Advantages claimed for the new washer are: more gentle handling of cloth; elimination of tangles, snarls and washer wrinkles; reduction in over-all scouring time; savings in water, soap and power; elimination of frequent repairs, and more uniform scouring.

Cone Duster

IN order that woolen mills will not be required to employ a variety of machines for cleaning and opening the many

different stocks which present conditions require such mills to run, the Davis & Furber Machine Co., North Andover, Mass., has developed a 10-ft. cone duster, capable of handling long staple wool in the grease, card waste, shoddy, or any other material requiring dusting. It may be equipped with a picker attachment for handling hard-pressed stock direct from the bale, and also cots. A large fan is located on the top of the duster to take care of the light dust that ordinarily would pass out with the air at the discharge end. The construction of the machine is practically all-steel and iron, no wood being used except in the large feed roll and the slats of the apron. It has unusually large screen area. The housing has been especially designed to permit instant access to any part of the machine for cleaning or for removing the screens.

In the accompanying illustration the cone duster is shown equipped with the regular feed, consisting of one large feed



roll with cockspur teeth and aprons. The picker which is used for hard or matted stock is similar in operation to the company's regular mixing picker, but has a slightly smaller cylinder. The production of the new duster ranges from 1,000 to 1,500 lb. per hour.

Full-Fashioned Hosiery Machine

SEVERAL improvements have been made by the Textile Machine Works, Reading, Pa., in the Reading full-fashioned hosiery machine. Many of the new features are designed for smooth and efficient operation of the machine at high speeds. An air-cushion brake, for example, has been applied to the camshaft to minimize the shock to the machine during the quick shifting to which the shaft is subjected (Fig. 1). To correct the unbalance of the camshaft in order to attain uniform rotational speed, certain cam members known as "balancing cams" have been added, affording, it is reported, greater uniformity in the fabric, increased life of the motor, decreased shock on the various parts, and elimination of the danger of the camshaft turning backward when the handwheel safety stop is released (Fig. 2). The shock absorber for the main carrier rod has been made positive by the adoption of a grooved cam, this eliminating the danger of the roller being thrown away from the cam surface when the speed is increased.

A mechanism known as the "inside splicing rocker" has been designed to give an increase in the size of the loops over a distance of approximately seven needles at the point of connection between heel and instep, in order to relieve the strain at this point when the stocking is worn and to reduce the danger of the topper splitting a stitch. A new Coulier motion, which is more sturdy and positive in action, is equipped with automatic visible lubrication. To prevent sudden dropping of the narrowing machine with the resulting misalignment and damage to the many points now commonly employed, a special shock absorber or safety release has been provided for the lifting shaft (Fig. 3). This serves to lower the narrowing machine slowly and uniformly into its proper position, thus saving time for the operator, as he can rack in his narrowing nuts on one end of the machine and release the narrowing machine lifting lever as he passes on his way to the other end of the machine without waiting until the narrowing machine is safely supported by its cams.

To eliminate the danger of fabric being torn by the force of the draw-off weights when a set of stockings is pressed off before completion, a safety stop has been provided in the draw-off pulley, consisting of two levers which are thrown outward by centrifugal force when the pulley begins to turn too rapidly, the levers catching on a projection of the pulley support arm. A slip coupling applied to the drive mechanism on the handwheel shaft acts as a release in cases of excessive overload and as a means of eliminating the sudden application of power to the machine with its consequent strain on the motor, chain, and other working parts. The slip coupling operates in the event of a jack-bed smash or a Coulier-motion jam, and thus serves to protect the machine from damage. A new intermediate shifting device for the lace-clock attachment permits moving the separate lace fingers at each knitting head toward each other for the purpose of producing symmetrical curved designs. Monel-metal moisture-collecting aprons are now standard equipment.

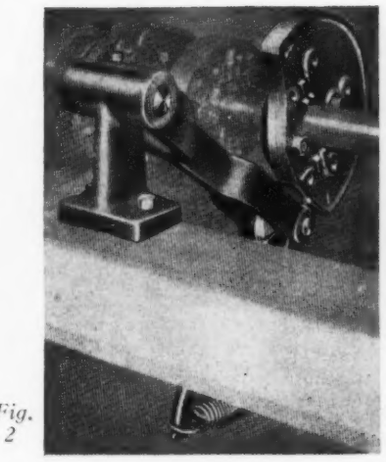


Fig. 2

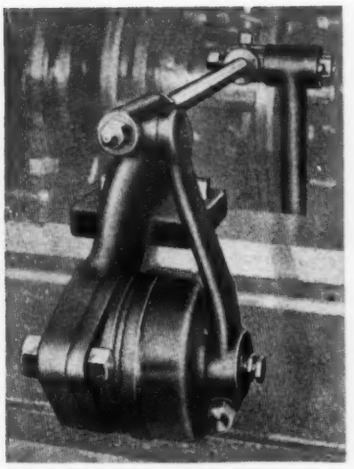


Fig. 3

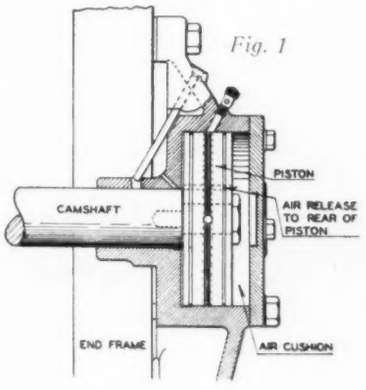


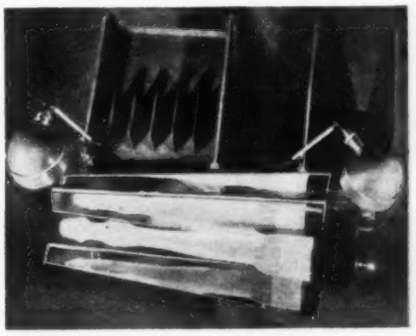
Fig. 1

Micarta Squeeze Rolls

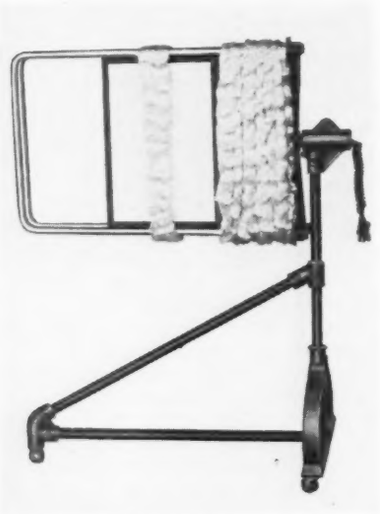
MICARTA squeeze rolls for dyeing machinery, and for other wet finishing operations in which resistance to heat, water, weak acids, alcohol, mineral oils and vegetable oils is desirable, have been announced by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The rolls are of Micarta tubes with shafts of fabric-base Micarta pressed in each end, and turned to shaft size, while the bearings are also of fabric-base micarta. Micarta is not easily scratched and is mechanically strong.

Hosiery Inspecting Machine

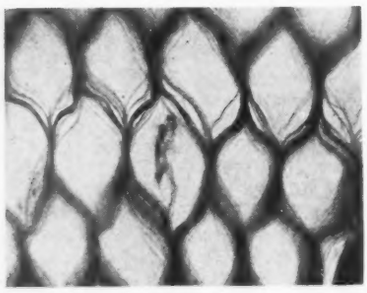
ANNOUNCEMENT of the Full-View hosiery inspecting machine, with mirror attachment which permits inspection of the complete stocking without turning of the form, has been made recently by Edward R. Ammon, Reading, Pa. The equipment is operated by compressed air, eliminating all labor other than that required for pulling the stocking on the form and removing it when inspection is completed. Among the advantages cited for the new machine are that it facilitates detection of defects and increases output.



one-third. Improvements in the form, other than the mirror attachment, include new roller toe projection designed to spread the toe looping both sidewise and lengthwise so that missed stitches or half stitches will be plainly visible; redesigned heel projection and expansion device for calf-narrowing stitches; and saw-tooth welt projections devised to grip the inside of the welt and to hold the stocking firmly on the form as it expands. The accompanying view was taken from above.



Above, Fig. 1; Below, Fig. 2



Yarn Inspecting Stand

FOR determining imperfections in yarn when in skein form, and also for analyzing fabric, a new inspecting stand has been placed on the market by Cheney Bros., South Manchester, Conn. The stand consists of an illumination panel mounted on a movable chromium-plated frame which is adjustable in height and fitted with casters. The panel is illuminated by specially manufactured frosted incandescent lamps which produce a diffused light spread uniformly back of an opalescent glass. The back of the illuminated case is painted a dull black, so that silk skeins may be examined for fine ends as on a pole against a blackboard. Ten skeins may be placed on the frame, as illustrated in Fig. 1. For fabric analysis the frame may be set in a horizontal position. The panel can be revolved 180 deg.

The diffused light is soft and reveals imperfections clearly. Fig. 2, for example, affords a view of a skein on the inspecting stand in which large waste clusters and hard gums are evident. Raw silk may be examined by this means for waste clusters, long knots, and general formation of the skein. Thrown silk in the gum, boiled off, or dyed may be examined for mill waste, long knots, and run backs. Rayon may be examined for slubs and broken filaments.

Foundation Holds Conference on Research

Research to improve quality of textiles was discussed last month at a two-day conference, at the headquarters of the Textile Foundation, Washington, D. C. Seventeen research fellows maintained by the Foundation at textile schools, universities, and other institutions reported on their respective projects. Suggestions were made by the Foundation Directors and Advisory Committee for the coordination of these independent studies in order to make them of greatest benefit to the industry.

The conference was opened by Franklin W. Hobbs, chairman of the Foundation's Board of Directors. Frank D. Cheney of New York, a director of the Foundation, presided at the first morning session of the symposium and Stuart W. Cramer, director and treasurer of the Foundation, at the afternoon meeting.

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Bicentennial of Flying Shuttle

This month marks the 200th anniversary of the invention of the flying-shuttle principle by John Kay, a reed maker and weaver, born in Bury, England. Upon the death of his father, Kay succeeded to the proprietorship of a woolen mill in Colchester, and soon after that, May 26, 1733, produced his revolutionary invention. It consisted of wooden pickers sliding on wires at each end of the lay, a handle held by the weaver, and cords connecting the pickers to the handle. The weaver jerked the handle to the right and left in order to drive the shuttle back and forth through the treadle-controlled shed. Kay also improved the shuttle to suit his invention, making it stronger and giving it a sharp point.

The unpopularity of his invention among weavers, who foresaw its effect on employment, forced Kay to retire to Leeds. The flying shuttle was, however, rapidly adopted; but, although Kay's patent was valid, he was systematically cheated out of any reward for his invention. Later he invented a spinning machine, but he was obliged to seek refuge in France in order to escape the vengeance of the spinners. He died there in poverty in 1764.

Textile Calendar

National Cotton Week, May 15 to 20, 1933.

Southeastern Section of American Association of Textile Chemists and Colorists, spring meeting, Ralston Hotel, Columbus, Ga., May 20, 1933.

Cotton Exposition with Fashion Show and Cotton Ball, Columbus, Ga., May 20, 1933.

Lowell Textile Institute Alumni Association, 34th annual meeting, Lowell, Mass., May 20, 1933.

Chattanooga Yarn Association, eighth annual golf tournament, Chattanooga, Tenn., May 25 and 26, 1933.

Boston Wool Trade Golf Club, outing, Charles River Country Club, Newton, Mass., June 5, 1933.

Philadelphia Textile School, commencement and alumni meeting, Philadelphia, June 8 and 9, 1933.

Southern New England Textile Club, annual meeting, Pomham Club, Riverside, R. I., June 17, 1933.

American Society for Testing Materials, annual meeting, Stevens Hotel, Chicago, June 26 to 30, 1933.

American Association of Textile Chemists & Colorists, Annual Convention, Chicago, Sept. 8 and 9, 1933.

Carolina Yarn Association, Annual Golf Tournament and Outing, Roaring Gap, N. C., Sept. 16 and 17, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

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To Survey Education

Marked interest has been aroused by the plans of the Textile Foundation to conduct a survey of textile education. The plans were mentioned by Stuart W. Cramer, at the Pinehurst convention of the American Cotton Manufacturers Association. An advisory committee of three nationally known educators is engaged in selecting a competent man to make the study, after which this committee will recommend what should be done in the way of standardization by the different textile schools of the country. This recommendation will then be submitted to the textile schools.

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School Alumni to Meet

The 34th Annual Reunion of the Lowell Textile Institute Alumni Association will be held at the institute in Lowell, Mass., on May 20. Activities will include a technical hour, motion pictures of textile manufacture, and a baseball game. Philadelphia Textile School Alumni will hold outing and banquet June 9.

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Tubes, Cones, Bobbins

Manufacturers, distributors, and users of taper tubes for filling, wooden cones for warp and knitting yarns, and bobbins for filling are being invited by the Division of Simplified Practice, Bureau of Standards, to a general conference on simplification, at 10:00 a.m., June 2, in Room 1233, 40 Worth St., New York.

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The Whitin Review

The first issue of the *Whitin Review*, a neat new publication to be "issued occasionally" by Whitin Machine Works, Whitinsville, Mass., appeared early this month. Its purpose, according to E. Kent Swift, president, is "to keep our friends better posted on what we are doing to improve textile machinery, and on how Whitin products are working out." Subjects covered in the first number, which is well edited and illustrated, include modernization of picking equipment, establishment of Charlotte shop, Whitin-McGrath spindle clutch, large-package woolen ring spinning, and long-draft roving.

Textile World Analyst

MANUFACTURING MARGINS STRENGTHEN IN ACTIVE MONTH

First-Quarter Activity Above Last Year—On the basis of complete statistics on total consumption of textile fibers during the first quarter of 1933 mill activity in the industry during that period was approximately 1½% greater than during the corresponding months of 1932. Compared with the first-quarter average for the eight years 1924-31, roughly assumed as a "normal," activity this year was 17½% under.

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TRUE to form on a rising market, textile manufacturing margins or profit possibilities strengthened during April.

Referring to Tables I and II, it will be noted that, while the average margins for the month were not spectacularly above those of March, there was a steady improvement during the month. In carded cotton fabrics, for example, the margin advanced from 9.9c. the first week to 13.2c. the last week; in carded yarns, the advance was from 9.8c. to 11.5c.

Coupled with this improvement in margins there have been a satisfactory development of business and a well-maintained rate of mill activity. Although statistics are not available for April at this writing, the first-quarter figures show a slight increase over the same period of last year.

Figures, however, do not reveal the change in attitude which has taken place in the textile markets recently. Part of this change, of course, was due to anticipation of the various inflationary proposals in the making. But this was not the whole story nor—do we think—the most important part of it. The textile industry is sharing in the gradual release from stagnation which seems to be appearing in all industry. Not at any time since the emergency became acute have the reports of improved outlook been more general. In other flurries, the change has been a spotty one, limited to a comparatively few spheres of action. This time it appears to be spreading over a broad front.

Electric energy utilization is a good index and it is significant that *Electrical World* reports an actual increase in kw.-hr. output in the latter part of April—absolutely contrary to the usual spring decrease due to longer daylight. In other words, the factory load is gaining *faster* than the lighting load is dropping.

Reports of greater retail activity, of sharp rise in steel production, and of gains in output of automobiles, are typical of the news which is finding its way into the business columns of the daily newspapers nowadays. Certainly, the President was not letting himself go when he said on May 7: "Today we have reason to believe that things are a little better than they were two months ago."

This improvement in business generally is of far greater potential importance to textile manufacturers than is any temporary activity in the goods market due to anticipation of the effects of inflation and of industry-control legislation.

Meanwhile, the textile industry continues to supply employment to a greater percentage of its workers than probably any other branch of manufacture in this country. It is encouraging to note a slight increase in total fiber consumption during the first quarter this year, as against the corresponding period last year. The increase did not apply to all branches of the industry: cotton and rayon showed greater activity while wool and silk declined. The net change, however, was upward—a source of self-congratulation for any industry these days.

From every standpoint, it is possible to recognize a wholesome pick-up in prices, activity, and morale in the textile industry. If this continues to develop; if general business also continues to improve; and if temporary slackening of demand in the future is not permitted to produce the usual epidemic of price and wage chiseling, it would seem reasonable to believe that the long-awaited upturn has come.

Incidentally, those are big, but not insurmountable "ifs."

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	January, 1933...	10.4
October, 1931...	13.3	February, 1933..	10.1
January, 1932...	12.1	March, 1933....	10.2
June, 1932.....	9.5	April, 1933.....	11.4
July, 1932.....	9.1	Week ending:	
August, 1932....	11.1	April 5....	9.9
September, 1932.	13.0	April 12....	10.4
October, 1932...	12.6	April 19....	11.1
November, 1932.	10.7	April 26....	12.3
December, 1932.	10.6	May 3.....	13.2

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	January, 1933...	10.2
October, 1931...	12.7	February, 1933..	9.4
January, 1932...	10.9	March, 1933....	9.8
June, 1932.....	9.9	April, 1933.....	10.1
July, 1932.....	9.6	Week ending:	
August, 1932....	9.7	April 5....	9.8
September, 1932.	12.8	April 12....	10.1
October, 1932...	12.3	April 19....	9.2
November, 1932.	11.3	April 26....	10.0
December, 1932.	10.9	May 5.....	11.5

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925.....	187	188	189	176	223	229	224	233	143
1926.....	140	155	157	149	184	189	179	207	136
1927.....	140	153	159	153	181	184	187	195	119
1928.....	160	162	162	166	199	202	199	197	110
1929.....	153	144	145	167	176	179	192	211	108
1930.....	108	125	123	144	127	139	161	202	179
1931.....	68	93	92	119	99	112	134	161	54
1932									
Jan.....	53	78	74	102	94	104	127	147	41
July.....	47	68	62	96	59	72	101	116	25
Oct.....	52	83	78	107	82	97	115	130	37
Dec.....	48	74	69	103	77	87	108	125	33
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29

TEXTILE WORLD'S

Cotton Digest

COTTON manufacturers must have had mixed feelings as they heard President Roosevelt, in his radio address to the nation, isolate the cotton goods industry as an example—as referred to elsewhere in this issue.

On one hand, there must have been a sense of chagrin that the industry could be held up as one in which a small minority defeats the wishes of the majority. On the other hand, there must have been a sense of satisfaction in that the President was merely re-stating truths which leaders in the industry have been preaching—largely ineffectively—day in and day out during recent years.

Fortunately, it looks as if something can be done about it now.

It must be a further source of elation that cotton manufacturers have, in the Cotton-Textile Institute, an agency which has won national recognition and which can be counted upon to serve the industry in the development of the broader plans for industrial self-government which the Administration has in mind.—*Editor.*

Cloth Market Advances Sharply

The steady advance of spot cotton from 6.40c. the first day of April to 7.90c. the last day of the month, together with the possibility of labor-limiting legislation, caused heavy sales of gray goods and statements are being made that the total of unfilled orders is now at a record high. In review, the month shows cycles of a few days of uncertainty followed by hectic activity as some new inflationary possibility came to the forefront. Prices rose sharply in sympathy with raw cotton, 38½ in. 64x60, 5.35 print cloth, for example, closing the month at 4c., a gain of ⅞c. Most of the orders placed were for May-June delivery.

A further sharp advance in cotton the first few days in May caused a flurry as prices were raised, but it became apparent that buying would not continue at the pace set during April. In the first place, a tremendous yardage has already been purchased and, although sales of finished goods and retail sales have shown improvement, the improvement has not been sufficient to support the high rate of activity in the primary markets. By May 15, spot cotton had reached 8.70c. and 64x60s, 5.35 print cloth 4½c. Denims were at 10½c.

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Carded Yarn Sales and Shipments Above Outturn

Sales of carded yarn during the four weeks prior to April 28 were 44% in excess of production, while shipments were 19% greater than production, according to statistics released at a meeting of the carded yarn group of the Cotton-Textile Institute, held at Pinehurst, N. C., during the convention of the American Cotton Manufacturers Association. Captain A. M. Fairley, of Laurinburg, N. C., chairman of the group, presided at the meeting, which also developed that yarn sales for the first three months of the year exceeded production; 45 mill executives, representing about 1,000,000 sales yarn spindles, and eight yarn merchants from Philadelphia, New York and Providence were present.

•

Chattanooga Yarn Group To Meet

The 8th annual golf tournament and banquet of the Chattanooga Yarn Association will be held May 25 and 26, according to an announcement made by D. O. Blevins of the Kaumagraph Co., president of the association.

•

To Confer on Prison Labor Problem

The House Judiciary committee which has been considering a bill to limit the production of wide duck at the Atlanta Penitentiary has appointed a special subcommittee to confer with all interested persons on this particular phase. Prior to this decision, Harry Bailey, representing the Cotton Duck Association, outlined the severity of the competition from the prison mill which last year produced about 25% of all the wide duck manufactured in this country.

Spindle Activity Declines During March

Cotton consumption in the United States during March amounted to 494,167 bales, as compared with 488,907 bales for the corresponding month last year, an increase of 1%. Stocks on hand in consuming establishments, according to the Bureau of the Census, totalled 1,343,314 bales, as against 1,566,080 bales on March 31, 1932, a decline of 14.2%. Spindle activity during March was at the rate of 93.9% of single shift capacity, as compared with 95% for February, 95.1% for January, and 89.9% for March, 1932.

Cotton exports for March amounted to 488,000 bales, as against 557,000 bales during the same months last year.

•

Fall Bedspread Openings Week of July 10-15

The bedspread group of the Cotton-Textile Institute, meeting in New York, April 14, discussed plans for holding uniform openings of fall lines during the week, July 10 to 15. Herbert Guttersen, president of the Institute of Carpet Manufacturers of America, described the plan followed in the carpet trade of showing new lines twice a year. Statistics considered at the meeting showed that sales during March were 25% in excess of production. Compared with last year, stocks on hand were 34% lower, while unfilled orders showed a substantial increase. Shipments for the first quarter were 94% of the same period in 1932.

•

State College Style Show and Textile Exposition

The annual textile exposition and style show at N. C. State College, Raleigh, N. C., in which young women representing the home economics departments of several colleges compete for prizes awarded for the best garments made from fabrics designed and woven by students of the textile school, was held April 27, more than 1,000 attending. Miss Alice Treadwell, of Myrtle Beach, S. C., a student at Meredith College, won the grand prize for the most attractive costume.

•

Plan Fabric Sales Code

A code of practice governing distribution of percales, all bleached, plain dyed and printed all-cotton wash goods, has been prepared by the Textile Fabrics Association and will be submitted to the Federal Trade Commission. The main points stressed in the code are: all bleached, dyed or printed cotton wash goods to be sold on basis F.O.B. point of origin; forcing of unjust terms of sale by resident or syndicate buyers either wholesale or retail, or by combined action of individual buyers, is unfair trade practice; violation by either buyer or seller of agreements as to dis-

count is an unfair trade practice. The code declares all types of rebates, misbranding, and style piracy as unfair trade practice, and it endorses the practice of submitting disputes to arbitration.

•

Clemson College Offers Cotton Grading Course

Clemson College (S. C.) Textile School, in cooperation with the U. S. Department of Agriculture, will conduct a course in cotton grading, under the direction of a specialist from Washington. Classes will begin June 12 and continue through July 11.

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Cone Family Protects Bank Depositors

That sentiment in business still exists in some quarters was demonstrated last month when the following announcement was made by the Cone family, of Greensboro, N. C., owners and operators of the Proximity Mfg. Co., and affiliated textile interests:

"Ceasar Cone organized the Textile Bank. He did so in order to encourage his employees to save a part of their earnings and to provide a safe place where they could deposit their savings. As a tribute to his memory, the members of the family of Ceasar Cone have decided to see that all depositors in the Textile Bank, and its successor, the Textile Branch of the North Carolina Bank & Trust Co., shall receive full payment of the balances to which they are entitled."

•

Power Rates Reduced

Duke Power Co., with headquarters in Charlotte, N. C., supplying electric power that turns approximately 7,000,000 spindles, or more than half of the cotton manufacturing equipment in the two Carolinas, has announced reductions in power rates for textile plants, based upon larger discounts, that will represent savings of about $528,000 for the cotton mills which the company serves.

•

Cotton Versus Jute

The Department of Agriculture recently issued a report, "Comparative Advantages of Jute and Cotton Bagging for American Cotton Bales," which discusses the various factors involved. It is pointed out that if cotton were sold on a net weight basis, instead of a gross weight basis, the handicap to the use of cotton bagging would be removed.

•

Size-Identification Tabs on New Pequot Sheets

Patent No. 1,907,393 has been granted to Pequot Mills covering the size identification label, known as "Quick-Pick" tab. Out of 215 distributors recently surveyed, 190 reported the tab to be a distinct sales advantage.

COTTON IN THIS ISSUE

	page
Cotton Textile Institute Honored	52
Cotton Week Improves With Age	53
Merchandising Study Shows Need for Mergers	54
Federal Legislation Theme-Song of A.C.M.A.	56
Improving Operation of Cotton Looms	60
New Draperies an Outlet for Cotton Dress Goods	63
Spinning Improvement Discussed by S.T.A.	67
Abolish Skein Test, Advises D-13	74
Group and Unit Drive in Combination	80

Cotton Mill News

Cotton Mill Products Co., Mobile, Ala., is installing 16 additional spinning frames.

Avondale Mills, Pell City, Ala., are installing a Sanforizing range made by Morrison Machine Co.

Flint River Mills, Albany, Ga., recently installed one convertible opener and switched from two-process to one-process picking.

John P. King Mfg. Co., Augusta, Ga., has completed the installation of pick counters, purchased through W. A. Kennedy Co., Charlotte, N. C.

Sibley Mfg. Co., Augusta, Ga., is having six one-process pickers installed by H. & B. American Machine Co.

Aponaug Mfg. Co., Koscuisko, Miss., has installed additional equipment, including a cloth calender, one picker and one slasher.

J. W. Sanders Cotton Mill, Starksville, Miss., has been installing additional spinning frames.

Amoskeag Mfg. Co., Manchester, N. H., reports net loss of $1,210,227 for 1932. This compares with net loss of $782,667 in 1931 and $1,345,389 in 1930. Cash and accounts receivable are listed as $8,104,671 and accounts payable as $277.24. William Dexter, of Boston, was elected president of the company to succeed the late Arthur H. Lowe.

Pequot Mills, Salem, Mass., were voted against by United Textile Workers Union Local No. 133 on the proposal that weavers take care of additional looms. The current agreement expired on May 8. The mill closed and will not reopen until the workers vote to return.

Balfour (N. C.) Mills has installed 150 of the newest model Draper looms.

Victory Mfg. Co., Fayetteville, N. C., was sold at public auction April 26 to Hunter Mfg. & Commission Co., principal creditor, for $75,000.

Pomona Mills, Inc., Greensboro, N. C., one of the group of mills indebted to the Hunter Mfg. & Commission Co., were recently placed in the hands of Norman A. Boren, receiver.

Proximity Mfg. Co., Greensboro, N. C., will carry out an expansion program at power plant to increase power capacity about 50%.

Clinchfield Mfg. Co., Marion, N. C., has changed over some spinning frames to individual drive, using General Electric motors with Goodyear V-belts.

Globe Yarn Mills, Mount Holly, N. C., was sold to the Whitin Machine Works the week of April 17.

Deep River Mills, Inc., Randleman, N. C., which has been in the hands of John W. Porter, receiver, was sold at public auction for $100,000 to Hunter Mfg. & Commission Co., May 3.

Rocky Mount (N. C.) Mills have completed installation of six one-process pickers, which have replaced 15 old-style machines, four openers and breakers, five intermediates and six finishers. This equipment furnished by the H. & B. American Machine Co.

Valdese (N. C.) Mfg. Co. has installed complete Hungerford & Terry filter and water purification plant, purchased through W. A. Kennedy Co.

Appleton Co., Anderson, S. C., has placed contract with the Townsend Lumber Co., Anderson, for construction of two warehouses, each with dimensions of 100x100 ft. J. E. Sirrine & Co., Greenville, S. C., prepared the plans. The Appleton Co. is also making plans for re-equipment of its steam-power plant to cost nearly $200,000. The investment will save $1,000 a week.

Orr Cotton Mills, Anderson, S. C., have placed contract for re-roofing and repairing about 80 employee cottages with the Townsend Lumber Co.

Blair Mills, Belton, S. C., including new addition practically completed and employees' cottages, were almost completely destroyed by tornado on May 5. Property damage is estimated at $150,000. Quick judgment of E. Clair Rice, president of mill, in getting workers from second floor of plant saved many lives. On May 8 contracts were let to rebuild the mill and the 30 houses.

Industrial Cotton Mills, Rock Hill, S. C., has awarded contract to the Townsend Lumber Co., Anderson, S. C., for the installation of new mill roof and for painting the plant. J. E. Sirrine & Co., are the engineers.

Manville Jenckes Co., Pawtucket, R. I., in receivership, would be reorganized as a new corporation, under a plan drawn up by stockholders and creditors. George R. Urquhart and Zenis W. Bliss, co-receivers of the present company, would become treasurer and president, respectively.

Washington Mills Co., Fries, Va., has awarded contract to the Mill & Marine Electric Co., Gastonia, N. C., for the complete electrification of its plant.

TEXTILE WORLD'S

Wool Digest

UP TO NOW, it has been advisable that the wool industry should get together and develop a strong centralized organization for cooperative effort. Now, it is imperative that this be done. The Administration's program embraces plans for rule by majority in each industry—and in these plans trade associations play a vital part. The industry without a strong association will be the loser.

There are already in this particular field certain agencies which can be utilized. There is the National Association of Wool Manufacturers which has persisted against odds for so many years. There is the Wool Industry Advisory Board set up a year ago. There are the individual selling agents in New York who played such a vital part in the old American Association of Woolen and Worsted Manufacturers. There are the men who helped in the launching of the ill-fated Wool Institute.

All that are needed are a will to do something, and a definite move of initiation on the part of some few leaders.

There is no time to be lost.—*Editor.*

Wool Goes Up Sharply

Several bullish factors have operated recently in wool, notably an expectation of controlled inflation, the decline in the American dollar, which lifts the import point of competing wools, and the plan of the Farm Credit Administration to dispose of its controlled wool. An advisory committee of five will merchandise this wool, approximately 25% of the 1933 clip.

Prices on spot wools have advanced sharply, about 20% since the middle of April, while fine tops have risen about 30%. A strong market prevails. The 1933 clip is estimated at 10,000,000 lb. less than the 1932 clip. Consumption of domestic wool for the first quarter shows a gain of 8.9%, as compared with a year ago.

Excited buying outright of wools in Texas, the fleece States, and the Far West indicates a higher level of values. Leading merchants are up in the air as to the value of new wool and are disinclined to offer the raw material.

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Slow Start, Quick Upturn in Wool Goods

After opening fall wool goods lines early in April at reductions of 2½ to 10c. per yard, the market was caught in the maelstrom of Federal inflationary measures and goods were raised 10 to 35c. per yard with prospects that all is not yet. Price chiselling agents were severely criticized by others at the opening in that the weak attitude resulting in deepest price cuts was unnecessary. Even when wool tops jumped over 20% in price in two weeks some presumably timorous agents made advances of 2½c. For a time many of the best guided lines were held "at value," and these are being returned slowly with a stronger attitude toward price.

The American shared in the general upward movement by raising prices 5 to 30c. per yard on its Dept. 3 woolens, covering all lines from cheap suitings to better grade overcoatings.

Buyers who did not get in on fall goods until commodity prices started to skyrocket have been pleading with agents to let them have goods at opening levels. Agents are not as weak-kneed on this as might be imagined but in some cases the advances over opening which were insisted on were only nominal at first.

There is strong call for goods which marks a distinct change from a month ago; nevertheless even clothiers hope that manufacturers will go slowly and not risk demoralization of the market by concentrated, 24-hour mill operation. The turn is being artificially engineered in order to bring greater employment, better wages and a chance for profits. Manufacturers will be doing a wise thing to use the opportunity to further these three aims.

Planning for a central organization to cooperate with the government is going forward in several quarters.

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Government to Aid in Sale of Pledged Wool

Henry Morgenthau, Jr., chairman of the new Farm Credit Administration, has announced the plan for marketing that portion of this year's wool clip which is a part of the security for loans made to growers by the regional agricultural credit corporation and the Reconstruction Finance Corporation. The plan includes the creation of an advisory wool marketing committee comprising representatives of growers, cooperatives, the Farm Credit Administration and the wool trade. H. B. Embach, of Arizona, general manager of the National Wool Marketing Corp., is to be chairman of the committee. Other members will be: F. R. Marshall, Utah, secretary of the National Wool Growers Association; Robert L. Purnell, president of the Boston Wool Trade Association, and a representative of the Farm Credit Administration, to be selected later.

Mr. Morgenthau emphasized the fact that the plan is designed to return the best possible price to the grower, and that the natural marketing procedure has been retained, the grower to designate the house to which he prefers to consign his wool.

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Blankets Supported

Blankets shortly after their opening in late March became caught in the general enthusiasm and price upswing during April. Initial business was reported better than 1930 after the season was only two weeks old. Around April 20 some lines were withdrawn as the rise in both wool and cotton put March prices quite out of line. Most lines were advanced about 5% around April 27.

Several wool blanket manufacturers by mid-May had made their second price advance since opening. Some all wool lines were up 20%. In general blanket business has been brisk and a number of lines have been withdrawn.

•

Worsted Yarns Stronger

Worsted yarns in harmony with the times advanced during April. Users were very cautious about following the rise, though there could be little doubt as to reasonableness of it in view of the sharp jump in wools and tops and the broader movement of goods at higher prices. Perhaps some weavers and knitters are uncertain how to pass on the advance, whether in higher prices or lower quality, and consequently hesitate over yarn purchases. Withheld business boiled over into greater activity in May.

•

Tops Up 20% in April

Tops registered the remarkable rise of nearly 20% during April. Boston spots on March 31 were at 58.00c. and on April 28 at 68.00c. Futures, taking September as an example, rose from an opening at 53.30c. on April 1 to a closing of 65.70c. on April 28. High for the month was 70.60c. registered on April 20.

The upswing of tops continued into May and Boston spots which were at 68c. on April 28 were 77c. on May 12. In the futures market the December contract rose from 67.40 on April 29 to 76.10 at May 5 close. It looks like another 20% rise during May.

Overseers to Meet

National Association of Woolen and Worsted Overseers will convene for its 50th semi-annual meeting on May 20 at Rocky Point, R. I. Business meeting will be held at 11 a.m. A shore dinner will be served at 1:30 p.m. There will be entertainment and tea for the ladies at 11 a.m. Louis Carmark is chairman of the committee on arrangements.

•

Association Gives History in Brief

The National Association of Wool Manufacturers has issued a comprehensive pamphlet covering its 68 years of service to the wool industry. Officers, articles of association and by-laws are given and a chronological list of noteworthy activities of the association from 1932 looking in retrospect to its founding in 1864.

•

Wool Consumption on Par with Year Ago

Wool consumption for March in the U. S. is reported by Bureau of Census at 9,599,000 lb. clean equivalent excluding 3,396,000 lb. of carpet wool in the grease. Consumption for the first quarter of 1933 (at 36,426,000 lb. clean wool) is only 160,000 lb. short of the figures for first quarter of 1932. Activity of machinery for March shows a decline of fair proportions from February ranging from 10 to 20%.

•

Germania's New Merchandising Plan

Germania Mills will hereafter merchandise their line of coatings through Germania Fashions, Inc., New York. This company will pick volume selling styles in the quality price lines in advance of the season. Selected manufacturers will make up these garments using Germania labels only on models approved by Germania Fashions, Inc. Retailers will also be selected, one in each community and selling helps will be supplied to them. The plan gives the mill better control of its distribution than otherwise and aids in taking its goods out of the welter of cut-throat competition for the purpose of giving a fair profit to all who handle them.

•

Women's Wear Trade Works on Code of Ethics

A meeting initiated by the Mills Relations Committee of the Merchants Ladies Garment Association, in New York on April 20, saw favorable reception to a plan to formulate a code of ethics or trade practices between wool goods mills and cutters-up in the women's wear field. The object is to promote better understanding between buyer and seller and to maintain standards of practice.

•

When Wool's Not Wool

"Making the Grade with Wool," published by Eavenson & Levering Co., Camden, N. J., quotes Mr. Ripley in his "Believe it or Not" as saying "Lambs' wool is not wool, and it does not come from a lamb."

The explanation may be appetizing or not as your taste dictates. It is:

"Lambs wool is a drink made of ale with sugar, nut-meg and roasted apples. Reference is made to it in Goldsmith's *Vicar of Wakefield:* 'The lamb's wool, even in the opinion of my wife, who was a connoisseur, was excellent.'"

The Eavenson & Levering editor adds "maybe it would be correct to say lamb's wool is the product of a 'blind pig.'"

WOOL IN THIS ISSUE

	page
Worsted Twist Defects—Their Correction	62
Imitation Backed Cloths; Wadding Threads	64
Budgeting by Overseer for Variable Production	68
Tar Spots in Fabric	84
Finishing Blankets	85
Wool Blend on Cotton System	85
Cone Duster	96

Wool Mill News

E. P. Barber Mfg. Co., East Lyme, Conn., has been liquidated, creditors receiving about 4½c. on the dollar. Buildings, real estate and water power have been turned over by the receiver, George J. Gordon, to Lillian F. Barber, holder of a second mortgage.

Brunswick Worsted Co., which acquired the Glens Falls mills, at Moosup, Conn., has purchased additional machinery from the Central Worsted Co. Operations are expected to start in July at new location.

Forest-Pondicherry Co., Bridgton, Me., now being organized by Raymond S. Bartlett, Brockton, Mass., and associates, is closing negotiations for purchase of mill of the Pondicherry Mills, Bridgton, from Deering, Milliken & Co., New York.

James Southley of Southley Wool Combing Co., North Chelmsford, Mass., has purchased the equipment of the **Victoria Mills,** Thornton, R. I.

New Jersey Worsted Mills reports net loss for 1932 of $670,653 against net income for 1931 of $49,395.

Forstmann & Huffmann Co., Passaic, N. J., has plans for new one-story, 40x75 ft., boiler plant to cost over $20,000.

Bigelow-Sanford Carpet Co., Inc., which has plants at Amsterdam, N. Y., and Thompsonville, Conn., has purchased from the Passton Co., Passaic, N. J., a complete set of machinery for the manufacture of felt rugs, together with printing equipment. The purchase also includes machinery used in the fabrication of rubber utilized in various types of floor coverings. The machinery is being moved to the Amsterdam plant of the Bigelow company. The mill buildings were not included in the purchase.

Leaksville Woolen Mills, Homestead, and Spray, N. C., have awarded contract to the Southeastern Construction Co., Charlotte, N. C., for an addition to cost approximately $10,000.

Mohnton (Pa.) Cotton & Woolen Mills. John H. Bridenbaugh has been appointed referee in bankruptcy for this company, which recently filed a voluntary petition in bankruptcy.

George W. Watt Woolen Co., Norristown, Pa., has closed bids on general contract for new addition, reported to cost close to $35,000, with equipment. Eugene V. Barthmaier, 1518 Walnut Street, Philadelphia, is architect.

Majestic Woolen Mills, Philadelphia, has leased the third floor of the building at D and Tioga Sts., that city, to be equipped and operated as a textile mill.

Perreault Mfg. Co., Front and Venango Sts., Philadelphia, worsted manufacturer, sold its equipment at liquidation sale April 7.

Carroll Worsted Mills, Inc., Thornton, R. I., has been placed in the hands of a permanent receiver, William T. Lees of Lincoln. Mr. Lees had previously served as temporary receiver.

Bonin Spinning Co., Woonsocket, R. I., has resumed operations after a compromise agreement ended a nine weeks' strike.

Lebanon (Tenn.) Woolen Mills, idle since last October, are reported to have resumed full-time operations on April 10. This plant manufactures blankets.

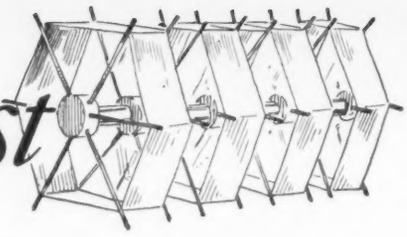
Jefferson Woolen Mills, South Knoxville, Tenn., have replaced 198 old-style looms with 68 new Crompton & Knowles automatic looms.

Carleton Mills, Ltd., Carelton Place, Ont., organized a few months ago by Clare MacFarlane of Montreal, to take over the **Hawthorn Woolen Mills** of George H. Hirst & Co., Ltd., in liquidation, is now in turn in liquidation.

H. Holdroyd & Sons, worsted yarn wholesalers, Toronto, Canada, have leased 7,500 sq.ft. floor space and will set up a Bradford system spinning plant. Production will start in June with V. C. Holdroyd in charge.

TEXTILE WORLD'S

Silk Digest



SINCE the new plans for American industry are the all-important news of the moment, it is in order to analyze each branch of textile manufacture in terms of its ability to adjust itself to those plans.

In the silk industry, a strong medium for cooperative effort exists in the Silk Association of America. Through times of prosperity and periods of depression, this organization has carried on, and has always performed valuable services for its members. Its potentialities have been limited of course by the same antiquated legal restrictions which have hampered all industry. It now appears that the Silk Association will have an opportunity to function under more advantageous conditions. Similarly, the comparatively new, but aggressive, Throwsters Research Institute should be able to perform a useful function in the new set-up.

The silk industry is in a position to move forward.—*Editor.*

50c Advance Marks Hectic Month

April was a month of hectic fluctuation in the raw silk market, but the trend continued consistently upward, prices registering a gain of about 50c. in the four weeks. At the beginning of May, broadsilk weavers showed active interest in nearby silk and were placing plenty of day-to-day orders. Mills are conspicuously low on stocks, even for their present moderate output and this has spurred demand, which in turn helped to hold the market firm. Raw silk importers looked for continued strength with perhaps moderate gains until the latter part of May, after which the warm weather was expected to bring a gradual let-down in coverage.

Hosiery manufacturers made many inquiries at the end of April, and orders showed a slight increase; however, the general feeling was one of resistance to the price advances and the knitters are holding off in expectation of a price easiness later. The credit situation of weavers is better, importers state.

•

Throwsters Use Sales Tax Clause

The Throwsters Research Institute has recommended that all members insert a clause in contracts, specifying that prices do not include the Federal compensating tax which would be imposed if the Farm Relief Bill became a law. The clause reads: "Prices shown on this order confirmation do not include proposed Federal compensating tax, which if enacted and levied will be added to invoice." In its communication the institute, through Dean Hill, executive secretary, expressed confidence that throwsters would be given necessary time to arrange for payment of the tax.

Other recent activity of the institute includes the inauguration of a system of reporting weavers who fail to make prompt return of shipping bobbins or spools, and a questionnaire to members on the Black 30-hour bill. Regarding this much-discussed legislation, the returns received late in April showed 67% of the throwsters as opposed to the measure.

•

Hara Report Favors Drive

Silk trade leaders in New York were advised early in May that Tatsuji Hara, Japanese delegate who recently studied the American silk consumption problem, had arrived in Tokio and had reported to the Central Raw Silk Association of Japan in favor of a silk promotional campaign in this country. Mr. Hara took back to Japan an impressive array of data bearing on the need for such a drive. It is understood that the drive, if approved by the Japanese Government and the silk industry there, will be financed by Japanese interests.

•

Fabric Sales Up 5%; Employment Declines 11%

An increase of 5% in yardage sales of broadsilks during March, compared with the previous month, was reported by the Silk Association. March yardage sales, however, were lower by 6% than for the same month of 1932. Stocks in the hands of manufacturers on March 31 were 6.4% lower than on Feb. 28 and 16.4% lower than on March 31, 1932. March employment in the industry was 11% lower than for the same month last year, and 22.2% lower than February. Broad silk loom employment decreased 17.6%, narrow silk loom employment 2.9% and spinning spindle employment 25.1% during March, as compared with February. Machinery operations during March decreased 29.8% for broad looms, 1.4% for narrow looms and 21.9% for spinning spindles, as compared with the previous month.

•

Association Guide Lists 15 Services

Extensive scope of activities now being conducted by the Silk Association of America is strikingly illustrated in a handy "Service Directory for Members" which that organization recently mailed to all firms on its roster. Fifteen specific services are listed. These include such standard departments as arbitration bureau, statistical bureau, trade mark registration bureau, library, missing property, legislation, publicity, claims, and print design registration. Other functions are: traffic bureau for all transportation data; fashion bureau covering promotional work; exchange bureau offering information on personnel, or the buying or selling of equipment; use of meeting rooms for private groups; road patrol, covering all aspects of security of merchandise in transit; finally, the association has available a field secretary for miscellaneous activity.

•

Commodity Exchange Nearing Completion

Remodelling work on the quarters to be occupied by the newly formed Commodity Exchange, in the International Telephone & Telegraph Building, New York, has progressed so rapidly of late that officials are confident the new exchange will begin operations in its new quarters early next month. The new exchange, which includes the National Raw Silk Exchange and three other commodity institutions, assumed official status May 1, when the order of consolidation that had been signed Feb. 10, by Justice Valente of the Supreme Court, was filed with the Secretary of the State of New York. This action made every member of the four exchanges a member of the combined unit.

•

April Imports 3.29% Above 1932

Raw silk imports during April were 32.9% higher than during April, 1932, the Silk Association of America, Inc., reports. April deliveries of raw silk to mills showed an increase of 17.1%, as compared with the same month of last year. Raw silk stocks at warehouses on April 30 were 43,038 bales, as compared with 57,849 bales on April 30, 1932.

April imports of raw silk were 41,134

bales, as compared with 22,289 bales during the previous month and 30,953 bales during April, 1932. Deliveries to mills during April were 41,910, as compared with 38,934 bales during the previous month and 35,779 bales during April, 1932.

•

India May Tax Silk Imports

Curtailment of the sericultural and silk industries of India has become so acute of late that the British Government has asked the Indian Tariff Board to study the situation with a view to possible tariff protection. The curtailment is due partly to the effect of the depression upon demand and partly to the increase of cheap imports of silk from Japan and China. Price-cutting is prevalent in the two divisions—handloom and silk mill—with the result that numerous Indian silk mills have closed and there is widespread unemployment in the handweaving industry.

•

Gerli Urges Gradual Inflation

Warning again a hysterical inflation in raw silk quotations, was expressed May 1, by Paolino Gerli, president of the Silk Association, who has been confined to his home at Ridgefield, Conn., following an operation. Mr. Gerli said too rapid rise in silk levels would be likely to increase the competition of synthetic fabrics during the coming season.

•

China's Silk Trade In Critical State

The Chinese silk industry suffered the worst set-back of its history during 1932, according to T. S. Miao, chief of the Shanghai Raw Silk Testing Bureau. Reviewing the situation in the *Inspection and Commerce Journal*, Mr. Miao offers startling figures regarding silk industry conditions in China. He states that the reeling capacity has been reduced to about 79 filatures, representing a 50% drop since 1931. He attributes the shrinkage to the depression, the Sino-Japanese dispute and domestic political upheavals in China. Unemployment, inability to get bank loans and a difficult labor situation are cited as the chief problems. One significant point made by Mr. Miao is that Japan has profited by the situation to gain considerable of China's export market, taking particular advantage of the exchange rate with European countries.

•

Arbitration Awards

Awards of approximately $10,000 were made during the latter half of April in cases submitted to arbitration under the supervision of the arbitration bureau of the Silk Association. Cases chiefly concerned the purchase and sale of finished and unfinished piece goods, both of silk and synthetic fibers.

SILK IN THIS ISSUE

	page
Domino Crepe Joins Style Parade	66
Saving Oil by Use of Salt in Silk Soaking	72
Economies in Silk Dyeing and Finishing	76
Lubricating Silk Warps	84
Overbeaten Crepe	84
Yarn Inspecting Machine	98

Oppose N. Y. Bills

An appeal to Governor Lehman of New York to withhold his signature from the McNaboe-Burchill bills, amending banking and general corporation laws, was made April 26 by the Uptown Credit Group of the Textile Industry, whose membership comprises leading textile manufacturers and factoring organizations of New York City. The Uptown Credit Group is affiliated with The Silk Association of America, Inc. A return to the old system of appointing receivers without regard to their qualifications, ability or integrity would be a probable result of this legislation, and the result would be destructive to industry, the group asserted.

The governor, who has until early June, to pass on these bills, had made no decision up to May 16.

•

Throwsters Campaign Against Defective Merchandise

The Throwsters Research Institute has been conducting an aggressive campaign, emphasizing the menace represented by defective merchandise. Attention is being called to the section of the commission throwing rules which provides that the throwster is under obligation to deliver the thrown silk as specified by the owner and that the latter is equally under obligation to examine and test the silk received.

•

Britain May Increase U. S. Fabric Orders

Recent strengthening of the British pound sterling may restore some of the former market in the United Kingdom for American silk dress goods, according to trade reports received by the Textile Division, Department of Commerce.

•

"New Psychology" Seen

Evidence of a "new psychology" in the broadsilk industry is seen by trade leaders in the strong desire now manifest toward remedying such long-standing evils as overproduction and unprofitable merchandising, and the yielding by mills to pressure for unfair selling terms.

•

Silk Mill News

Atmore (Ala.) Silk Mill completed its silk throwing plant early in April. This plant comprises 14,000 square feet of floor space, and 150 operatives will be employed. This plant was erected by H. H. Patterson. Rubeck & Vandell, of New York, who operate a similar plant at Brewton, Ala., will also operate this mill.

Cadillac Silk Co. has been formed in Norwalk, Conn., to take over the mill of the Powell Silk Co., plain and fancy broad silks. Officers of the company are Irving M. Schwartz, Samuel Abrams, Harry A. Schwartz and Samuel Schwartz.

Haskell Silk Mill, Westbrook, Me., one of that city's oldest industries, has closed. The 70 employees were released and all orders cancelled. It was founded by James Haskell in 1874 with an output of spool silk entirely. In 1881 it began the manufacture of broad silks, but lately was running on rayon.

Henry Doherty Silk Co., Clifton, N. J., will soon be reorganized and again in operation according to plans touched upon by counsel for the receivers when he appeared before the Clifton City Council for reduction of assessment valuation.

Belding Heminway Co., New York, reports for the quarter ending March 31, 1933, net profit of $55,203 after taxes, depreciation, interest, etc., equal to 12c. a share on capital stock. This compares with a net loss of $29,700 the first quarter of 1932.

Duratex Mfg. Co., Roseto, Pa., organized by Matthew Duvo and associates, to manufacture broad silks, is planning extensions and improvements in former mill of Roseto Co., recently acquired, including installation of new equipment. About 400 operatives will be employed when the mill begins production in June.

Elizabeth Mills, Hillsgrove, R. I., for some years prior to their closing manufacturers of broad silks, have been bought by Frank Castiglione, Providence, from the Wollen Co., Paterson, N. J., for conversion into a brewery. Price was said to have been $145,000.

Stehli Silk Corp., Waynesboro, Va., plant, which has been closed down since March 11 on account of unsettled conditions in the raw silk market, is making preparations to re-open.

TEXTILE WORLD'S

Rayon Digest

RECENT developments in the synthetic fiber field furnish further evidence of the loss of price stability which was once such a vital asset in this industry. A price-cut was followed by a partial re-instatement which in turn was followed by expectations of a further advance.

This is hardly the sort of sequence of events which might be expected to instill confidence into mill-consumers and to encourage free expansion of the use of rayon.

In justice to the yarn producers, it must be admitted that they have been facing a difficult situation, in view of the kaleidoscopic changes in the business situation combined with the fluctuations in raw silk, a competitive fiber. Nevertheless, it should be recalled that when the cut of 10c. per lb. was put into effect, it was generally hailed as inadvisable. Later events bore out this criticism.

Rayon producers have not an easy task in this problem of price policy. However, it is one which must be tackled courageously and cooperatively if the full possibilities of these relatively new fibers are to be realized. Certainly, no other branch of the textile industry has as promising a background on which to build cooperative effort in this and other directions, in line with the new national plans, as has the highly centralized and man-controlled field of synthetic-fiber manufacture.—*Editor.*

Viscose Process Yarns Up 3 to 10c

The strong inflationary tendency has occasioned an about-face in certain synthetic yarn prices. Slightly more than three weeks after the April 3 price cut, the Viscose Co. on April 26, led a new upward movement by announcing a 3 to 10c. advance on all viscose process yarns. The increase raised 150 denier 5c. per lb., to 55c. and 100 denier 7c. per lb. to 72c. This company opened its books on May 1, for May, June and July deliveries. Similar advances in viscose process yarns were announced by the remainder of the viscose yarn industry. Tubize Chatillon Corp. made known that it had changed prices on both viscose and nitro-cellulose yarns to conform with new levels.

Market prices of acetate yarns on May 6 were advanced 5c., reflecting an increase announced by the Celanese Corp. of America.

The new price list of the Viscose Co. on viscose process yarns follows:

Denier and Filament	1st Quality Skeins	2nd Quality Skeins	1st Quality Cones
50/14	$1.10	$1.05	$1.15
75/30	.87	.84	.92
100/40	.72	.69	.77
125/36	.60	.58	.60
150/24-40	.55	.53	.55
150/60	.60	.58	.60
200/30	.51	.49	.51
200/75	.56	.54	.56
300/44 and coarser	.45	.43	.45

The above prices for Bright & Dulesco Chalkelle—$.05 per lb. extra.

Surplus Shrinks Fast

Surplus stocks of rayon yarn have been so drastically reduced of late that at the beginning of May the industry did not have more than two or three weeks' supply on hand, according to the May 1 issue of *Textile Organon,* published by Tubize Chatillon Corp. Remarking that the recent sudden buying move "has been most healthy," the publication predicted another rayon price advance due to the sharp gains in cotton and silk levels.

•

Increased Call Steps Up Production

Heavy buying of synthetic yarns was reported early this month by leading producers. The pick-up was especially noticeable in the viscose division. Considerable future business has been placed and some firms are sold solid up to the beginning of July. Buyers view the April 26 price rise as the forerunner of further advances, and producers look for continued strong booking through to mid-June, at least.

The sudden inflationary trend has raised several problems for producers; chief among these is the speculative tendency of buyers. A considerable part of the current volume is understood to be of the speculative type, and should prices take an unexpected weakness, much of the advance business might be cancelled, throwing the burden on the producers. This difficulty arises, producers say, from the fact that sales contracts are not made sufficiently binding.

In line with the increased demand, producers have stepped up production and at the beginning of May most of the industry was operating at capacity. Since silk prices of late have risen much more than rayon prices, the synthetic yarn group does not regard silk competition as a big factor at present.

•

Furness Reorganization Plans

Following the appointment of William H. Furness as temporary receiver for the Furness Corp., Gloucester City, N. J., it was announced that Dr. Arthur Mothwurf, formerly president of the Bemberg and Glanzstoff companies, and Henry N. Harson had been appointed selling agents with offices at 185 Madison Ave., New York. Prior to this arrangement, Forrest Bros., Philadelphia, had sold the Furness yarn.

The receivership was the result of action within the company and Mr. Furness stated that overhead had been reduced sharply and that the company was working out its financial problem satisfactorily. Its current operations are at the rate of 1,000,000 lb. per year, based on 150 denier. The plant is producing a dull luster yarn by means of organic pigmentation.

•

British Rayon Output Sets New Record

British output of rayon yarn and waste created a new record in March when the total reached 6,640,000 lb. against 5,430,000 lb. in February and 6,320,000 lb. in March, 1932. Previous monthly high was November, 1932, when the figure was 6,590,000 lb. Increase in output was mainly due to more intensive production in the Courtauld plants, though the employment position at both British Celanese and British Enka also improved considerably during March.

In view of the fact that Samuel Courtauld hinted at the annual meeting that a further curtailment of output might be necessary, the record figure has come as a surprise, and tends to show that Courtaulds have secured a large share of the available business.

•

Japan Nearing Second Place

Japan was visualized as potentially the second largest producer of rayon in the world, in an address by Samuel Courtauld, chairman of Courtauld's, Ltd., at the general meeting of that company in London, recently. Mr. Courtauld pointed out that not only has Japan captured Far Eastern markets, but she is also beginning to export considerable quantities of yarn to Europe; he added that Lancashire already has felt the

acute competition of Japanese woven cotton and rayon fabrics. He cited some striking figures: America stands first in production with 131,000,000 lb., Italy second with 70,000,000 and Great Britain third, with 69,000,000. Japan's output in 1932 totalled 13% of the world's output, or 68,000,000. The speaker emphasized that a slight increase would put Japan in second place. The rapid growth of the Japanese rayon industry is illustrated by the fact that six years ago her output was 5,500,000 annually.

•

Tubize Sales Up 11%

An increase of 11% in sales during 1932 as against 1931 was reported for Tubize Chatillon Corp. by Roland L. Taylor, chairman of the board, at the company's annual meeting on May 1. This increase was regarded as especially significant in that the synthetic yarn industry as a whole reported a 1% decline in the same period. Two new directors were elected as follows: Harry A. Arthur and W. Hinckle Smith, who succeeded Gerrish H. Milliken and John Nash McCullaugh, who resigned.

With the purchase of Argus Knitting Mills, Tubize joins other rayon producers in making knitted fabrics.

•

German Rayon Week Dampened by Politics

Political activities of the Nazi organizations seriously undermined the effectiveness of the German rayon promotion week, which was observed in Berlin and elsewhere during April. The event started promisingly, and retailers reported active interest in rayon merchandise for the first few days. Subsequently, however, all mention of the event was eliminated from newspapers due to Nazi activitiy, and the promotion tapered off to a disappointing end.

•

Active Yarn Call for Outerwear

Growing style importance of knitted sport dresses and other knitted outerwear, has stepped up mill activity to such a point that this division of late has been placing very substantial rayon yarn orders. The knitters are buying mostly viscose process, acetate and novelty yarns, especially the dull-surface numbers. The demand for yarn from these mills started to show unusual activity in mid-April and increased rapidly at the end of that month.

•

Singmaster Patents Acquired by Tubize

The Tubize Chatillon Corp. announced April 28 that it had reacquired by outright purchase from the New Jersey Zinc Co., Inc., all American, Canadian, English and European patents issued to James A. Singmaster, pertaining to the delustering of artificial silk or rayon by the use of pigments. The ownership of these patents was recently awarded to the New Jersey Zinc Co., Inc., by the decision of Judge Caffey of the U. S. District Court in litigation brought to establish ownership.

These patents cover the methods and process by which Tubize Chatillon Corp. produces delustered yarns known as Chardonize and Sanconize, as well as their very dull viscose and acetate products.

James E. Hayes, president of the New Jersey Zinc Co., Inc., confirmed the above statement, adding that the sole purpose in bringing the suit was to establish the New Jersey Zinc Co.'s right to Singmaster's inventions while in its employ.

•

Waste Scarce, Prices Rising

Shortage of stocks and the inflation influence brought about a decided firming of price levels in rayon waste during April, and at the beginning of May certain leading dealers announced that they were sold out for May and June on the more popular types of waste. The output of rayon waste by synthetic yarn plants has been declining steadily and when demand began to pick up this spring, there was little stock available. Prices tightened and continued firm until the end of April when there was a general advance of 2c. Prices on open bleached waste were quoted May 2 on a nominal basis at 15 to 16c. per lb. Bleached delustered thread was selling at 9½c. per lb. There was little lustrous thread waste to be had.

•

New Bemberg Yarn

A dull-surface yarn, known as "Matesa," has been announced by the American Bemberg Corp. This yarn was developed by the Bemberg interests in Germany where it is reported to be enjoying good demand.

•

March Imports

Rayon yarn imports during March totalled 7,072 lb., representing a value of $6,882, it is reported by Department of Commerce. Imports of synthetic waste aggregated 86,423 lb., valued at $11,546. In the cut or staple fiber division 37,371 lb., value $10,050, were imported during the same month.

RAYON IN THIS ISSUE

	page
Domino Crepe Joins Style Parade	66
Conditioning Rayon Crepe	69
Rayon Filling Breaks	84
Overbeaten Crepe	84
Yarn Inspecting Machine	98

Rayon Mill News

Malina Co., Inc., New York, has established a plant in the new Port Authority Commerce Building, 111 Eighth Ave., where the firm will convert rayon yarns, including dyeing, winding, coning, copping, twisting and warping. As all the trunk line railroads have freight terminals in that building facilities for delivery will be the best possible. The company also maintains a plant at Paterson, N. J., especially equipped to serve the weaving trade. At its new location in New York, Malina Co. has assembled the most modern machinery for handling rayon yarns.

Industrial Rayon Corp. shows net profit of $229,376 for the first quarter of 1933 equalling $1.59 per share, which marks a gain over the first quarter of 1932 when net was $177,649 or $1.22 per share.

American Bemberg Corp. reports net loss of $603,619 for 1932, compared with net loss of $588,796 for 1931. Operating profit for 1932 was $500,767 compared with $379,807 for 1931.

American Glanzstoff Corp. reports net loss of $451,443 for 1932 compared with net loss of $41,922 for 1931. Current assets Jan. 1, 1933, amounted to $4,914,834 against current liabilities of $305,754.

Mid-State Cloth Mills, Newton, N. C., formerly the Warlick Mfg. Co., has begun an addition to cost $12,000. The Herman-Sipe Co., Conover, N. C., has the contract. Rayon cloth is manufactured.

Industrial Rayon Corp., Cleveland, Ohio, has awarded general contract to the Hughes-Foulkrod Co., Philadelphia, Pa., for three new additions to branch mill at Covington, Va., mentioned last month, and begins superstructure at once. Work consists of a three-story unit, 45x60 ft., one-story, 100x220 ft., and one-story, 25x30 ft., estimated to cost over $100,000, with equipment. Company is running on full 24-hr., three-shift production schedule at Covington mills, as well as main plant at Cleveland.

Viscose Corp., Roanoke, Va., has adopted a full time schedule at local mill, for first time since August, 1931, giving employment to about 4,000.

Courtaulds (Canada) Ltd., Cornwall, Ont., has announced the completion of its new building which will double its output of rayon. More than 1,400 operatives are now employed.

Manhattan Mills, Ltd., St. Johns, Que., organized about a year ago for rayon weaving, and for which the town of St. Johns provided the buildings, are in liquidation.

TEXTILE WORLD'S

Knit Goods Digest

THE Philadelphia convention of the National Association of Hosiery Manufacturers revealed a fine record of promises performed and offered a prospect of further achievement. This organization is in an excellent position to avail itself of the broader opportunities for associational effort which national plans, now in the making, are to offer.

In fact, the entire knitting industry seems to be well equipped in this connection. Duplication of effort among associations has been eliminated and the hosiery, underwear and outerwear branches can be represented by the National Association of Hosiery Manufacturers, the American Knitwear Manufacturers Association, and the National Knitted Outerwear Association, respectively.

Adequate support by the memberships at large is all that is needed to enable these organizations to function effectively as the "new deal" develops.—*Editor.*

Fair Underwear Call

April brought a moderate activity in spring underwear. There were also sporadic bookings on fall lines, despite the fact that lines had been officially withdrawn since the end of March. Market sentiment was strong and there was general expectation of early advances.

Roy A. Cheney, secretary of the American Knitwear Manufacturers Association arrived in New York May 16 for a series of important meetings with underwear manufacturers.

•

Buyers Cautious on Hosiery Advance

While hosiery prices strengthened considerably during the month, buyers and sellers are far from agreement as regards their policies on the inflationary trend. Announcements of upward revisions on full-fashioned hosiery were frequently made and these reflected the rise in the raw silk market. Leaders in the industry agreed that quotations were bound to continue advancing on both cotton and silk hosiery.

The chief feeling among hosiery buyers at the beginning of May was that the upward trend was sound, but the immediate prospects for raising their own prices were too uncertain to permit extensive future coverage.

•

Outerwear Prices Bear Upward

Knitted outerwear prices tightened decisively at the end of April, reflecting a sharp upturn in yarn quotations; buying of seasonal lines was active but unevenly distributed. Some firms were oversold while others complained of indifferent demand. Prices of bathing-suits were raised 50c. to $1.50 and there were advances of 50 to 75c. on fall sweater lines. The market was confused during the first week of May, both sellers and buyers being bewildered by the rapid developments in the primary markets. Swimsuit demand was spirited, but the whole swimsuit division was so backward that leaders were not optimistic regarding the season's outlook. The spokesman for one important swimsuit organization said that there was little chance anyone would make a profit in bathing-suits this year, even allowing capacity business from now on, because the spring season had been unprecedently bad.

Spring sweater prices rose 10% on quality lines and a certain hesitancy of buyers to meet new levels was evident.

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Folder Reveals Hosiery Trends

Significant statistics on various aspects of the full-fashioned hosiery and related industries, are offered in the "Statistical Folder 1933" which has just been issued by the Textile Machine Works, Reading, Pa. Of the total full-fashioned Reading and imported knitting machines shipped during 1932, 40.6% went to Pennsylvania, 29% to North Carolina and the small balance to five other States. A survey of trend in gages of Reading machines produced since 1902 showed the steady downward tendency of coarse gage machines, and proportionate jump in finer gages. One interesting point was that 51-gage picked up slowly through 1929, leaped ahead through 1931 and tapered off in 1932. On the other hand, 42-gage machines became decidedly more popular last year.

Full-fashioned hosiery mills used 23.6% of the total raw silk delivered in the country during 1932, nearly double the amount used by the same group in 1922. A study of hosiery output by fiber showed the following figures:

	Silk	Rayon	Cotton	Mixtures
Women's full-fashioned.....	94.5%	2.1%	0.1%	3.3%
Women's seamless.....	8.0	36.0	44.0	12.0
All groups.....	43.0	11.4	32.3	13.3

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Lang Again Heads Unionized Hosiery Group

Renewed effort toward securing wage and other concessions from the American Federation of Full-Fashioned Hosiery Workers, was decided upon at the annual meeting of the Full-Fashioned Hosiery Manufacturers of America, which was held last month in Philadelphia. This organization, whose membership is composed of unionized hosiery mills re-elected George F. Lang as president. Mr. Lang is president of Co-Ed Silk Hosiery Mills, Philadelphia. Oscar E. Merkel, president of Pohatcong Hosiery Mills, Inc., Washington, N. J., succeeds Parker Margeson as vice-president. Joseph Haines, Jr. and Leo Propper were re-elected secretary and treasurer respectively.

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Durene-Silk Lisle Stocking Offered

One of the feature exhibits at the Cotton Show held by the Fashion Group at its New York headquarters during early April was a new stocking for women, made of 75% Durene Mercerized cotton yarn and 25% silk lisle, and manufactured by the Burson Knitting Co. It was announced April 21 that Brown Durrell Co. had been given exclusive wholesale distribution privileges for this line which retails at $1.

•

New Outerwear Council

Plans for the formation of an emergency advisory council to act for the knitted outerwear industry with regard to pending national legislation, were made at a meeting May 3 of the National Knitted Outerwear Association at its New York offices. This council, membership of which will be announced shortly, will devote itself to preparing the industry for possible changes.

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"Knit-for-Profit" Theme of Lectures

Further steps were taken by the National Knitted Outerwear Association during April in the "knit-for-profit" movement. The association has drawn up a set of model budgets based on actual present-day conditions and applicable to various types of mills.

Knitting Week

(Continued from Page 90)

For treating hard water, a fully automatic zeolite softener was demonstrated. The softener is available in three models, giving automatic regeneration of the zeolite by means of a hand-operated switch, a time control, or a meter control. The control unit consists of an electric motor, compact worm drive, and single control valve.

The latest styles in printing, lithographing, labeling, and packaging hosiery and other knit goods were featured by several exhibitors. In conjunction with these displays were shown a new stamping ink and a new transfer solvent. Also were demonstrated a new line of equipment for printing sizes, colors, style numbers, and quantities on either loose labels or wrapped-top boxes; and a unique cone-sticker printing machine which prints, perforates, and rewinds stickers from a roll of gummed paper. Another innovation in general mill equipment was a semi-automatic wire-tying machine for wiring packages of various sizes.

New optical equipment for use in the textile mill included a textile projector for inspecting yarns and fabrics under high magnification (*T.W.*, Feb., 1933, p. 66), an instrument for determining fiber diameters and lengths, a microscope for the surface examination of single fibers, and another microscope for examination of textiles under polarized light. An improved mercury vapor lamp for use in knitting plants was featured by one exhibitor.

New chemical products ranged from compounds for soaking raw silk to materials for finishing the various types of knitted garments. Featured among these were a conditioner for rayon crepe (*T.W.*, March, 1933, p. 98); a series of soluble-oil specialties for throwsters and knitters of silk and rayon (*T.W.*, April, 1933, p. 107); and a group of highly sulphonated compounds for use in throwing, dyeing, and finishing (*T.W.*, Dec., 1932, p. 120). Other specialties included compounds for waterproofing and delustering hosiery in one operation, a scouring agent which permits use of sodium hypochlorite in the scouring bath, and an alkaline detergent particularly applicable for wool scouring.

A large number of exhibits were devoted to displays of various types of yarns and knitted fabrics made therefrom. Prominent among the newer materials of this type was an elastic yarn produced by covering a round rubber thread spun from latex with cotton, silk, rayon, wool, etc., (*T.W.*, Jan., 1933, p. 50). New synthetic yarns included a spun cuprammonium yarn with fine multi-filament structure and subdued luster, a high-denier, no-twist cuprammonium yarn, pigmented yarns, and unpigmented dull-luster acetate yarns. Featured also were novelty yarns of wool, mohair, silk, and rabbit hair. New uses for mercerized cotton yarns were emphasized by several exhibitors, one showing styled merchandise made by 35 different manufacturers.

KNIT GOODS IN THIS ISSUE

	page
Full-Fashioned Defects—Diagnosis and Cure	70
Manufacture of Knitted Fabric	85
Specks in Knitted Fabrics	85
Knitting Week in Philadelphia	87
Convention Report	87
New Things at Machinery Show	88
Hosiery Inspecting Machine	97
Full-Fashioned Hosiery Machine	97

Knitting Mill News

Tennessee Valley Mfg. Co., Scottsboro, Ala., has been formed to take over the properties of the **Scottsboro Hosiery Mills**, which will begin operations under the management of C. E. Spivey.

Princeton Co., Inc., Watertown, Conn., which acquired the equipment of Princeton Rayon, Inc., has authorized construction of a new waste treatment plant at dye house on Echo Lake Road, and will proceed with work at once.

Suffolk Knitting Co., Lowell, Mass., will move from the former U. S. Cartridge Co. plant to the Appleton plant, where space has been leased.

Robert Reiner, Inc., has transferred its full-fashioned hosiery mill at Westmont, N. J., to Harry Gottlieb, formerly of the Trio Silk Hosiery Co. The Westmont plant was originally used for demonstrating single-unit full-fashioned hosiery.

Richard Knitting Mills, Inc., Long Island City, N. Y., represented by Rudolph Hoffman, 65 Richard Avenue, New York, have been organized with capital of 100 shares of stock, no par value, to operate a local mill.

Buster Knitting Mills, New York, has moved its plant to Milford, N. H., starting operations there May 1.

Manhattan Knitwear, Inc., New York, it being formed by Julius W. Hess who for the last six years was superintendent of the New Knitting Mills. Offices are at 358 Fifth Ave.; plant location was not reported.

Araho Knitting Co., headed by Raymond O'Hara, Norwich, N. Y., has acquired the former plant of **Chenango Knitting Co.**, Sherburne, N. Y., and will remodel and equip the same for manufacturing a full line of knit materials.

Walnott Knitting Co., Utica, N. Y., plans to remove its knitting machinery and equipment from its Washington St. plant to the Wald & Sinott plant at 5 Blandina St., to increase production.

Hassinger Bros., Millheim, Pa., knit goods manufacturer, plans to establish and operate a branch plant in Bellefonte, Pa. Negotiations are in progress for acquisition of a site in the latter city.

Owen Osborne Mills, Philadelphia, operated by Owen Osborne, Inc., are arranging for construction of new one-story branch knitting mill at Gainesville, Ga., for hosiery production.

Pontiac Knitting Mills, York, Pa., has been moved by Robitscher & Daum to Muscle Shoals, Ala.

Griflan Hosiery Mills, Inc., were chartered at Burlington, N. C., April 20, to knit and manufacture hosiery of all kinds.

Conover Knitting Co., and **Warlong Glove Mfg. Co.**, Conover, N. C., have completed an addition, 80x100 ft., giving the two mills 40,000 ft. floor space.

Chipman-Burrowes Hosiery Mills Co., East Flat Rock, N. C., with the removal of the **Chipman-LaCrosse Hosiery Mill**, LaCrosse, Wis., to its plant, will expand operations on July 1, according to the announcement of C. A. Seibert, secretary-treasurer, of the East Flat Rock plant. Seventy-two machines are being moved from the Wisconsin mill.

Mock, Judson, Voehringer Co., Inc., Greensboro, N. C., reports net earnings for 1932 of $87,245, against net earnings for 1931 of $208,703.

Victor Hosiery Mills are being organized by G. T. Whitlock, retired hosiery manufacturer of Hendersonville, N. C. He proposes to install machinery in the Wetmur building.

Bowman-Hafer Hosiery Mill, Hickory, N. C., will be known in the future as **Hafer Hosiery Mill**, W. V. Bowman having sold his interest in the concern to R. G. Hafer.

Superior Hosiery Mills Co., Lexington, N. C., was placed in receivership under an order signed by Judge H. Hoyle Sink at Greensboro, N. C., April 18. P. V. Critcher was named receiver.

W. A. Harrill & Son, Rutherfordton, N. C., have installed 15 new machines in their knitting mill.

Waldesian Hosiery Mill, Valdese, N. C,. Pine Bur Division, is making an addition that will almost double the size of the present structure. Work was begun about April 15, J. M. Brinkley & Son, contractors. The building will measure 60x73 ft., brick, one-story and basement.

Richmond Hosiery Mills, Chattanooga, Tenn., have added 150 300-needle women's hosiery machines to their equipment. They also have renovated the power plants at Rossville and Soddy mills and have installed a new yarn dyeing machine for ingrain work.

Warren R. Spivey has leased the old commissary of the Dayton (Tenn.) Coal & Iron Co., in which he has installed machinery purchased from the Paint Rock (Ala.) Hosiery Mill, wrecked in the tornado there last year.

Jersild Knitting Co., Neenah, Wis., has been reorganized and leased the plant from the former company.

TEXTILE WORLD'S

Processing Digest

FOR many years, leaders in the textile finishing industry have striven to check the price-cutting and sub-standard performance which have pushed so many perfectly reputable firms close to bankruptcy. These plans have been largely frustrated, first, by legal restrictions, and, second, by the unscrupulous activities of a small but effective minority.

There is hope that the new national plans, referred to elsewhere in this issue, will remove the first of these barriers—with of course proper provision for protection of the public interest. As a corollary to this, minorities will be restrained from nullifying the efforts of the industry as a whole.

Thus, the National Association of Finishers of Textile Fabrics should have an opportunity, working in conjunction with the Textile Fabrics Association representing the converters, and with other interested parties, to put into action many of the forward-looking policies which have been defeated in the past. —*Editor.*

A.A.T.C.C. Notes

The sub-committee on fastness tests for dyed wool of the American Association of Textile Chemists & Colorists, has adopted the following dyeings as standards representing the minimum fastness to washing or laundering: Class 1 (highest degree of fastness), 2% Erio Chrome Azurole BX (*C. I.* 720); Class 2, 1% Brilliant Milling Blue B (General Dyestuff Corp.); Class 3, 1% Patent Blue A (*C. I.* 714); and Class 4, 1% Alizarine Sky Blue B (*C. I.* 1088).

At a meeting of the Rhode Island Section, held April 28, in Providence, Wallace Taylor, of the Textile Finishing Machinery Co., spoke on "Modern Machinery for the Bleachery and Print Works."

Speakers at the April meeting of the New York Section were Prof. Allen Rogers, of Pratt Institute, and Henry Green, of Hathorne & Green. Professor Rogers described some of the more recent developments in the leather industry; and Mr. Green gave an illustrated talk on "Delustered and Pigmented Rayons."

•

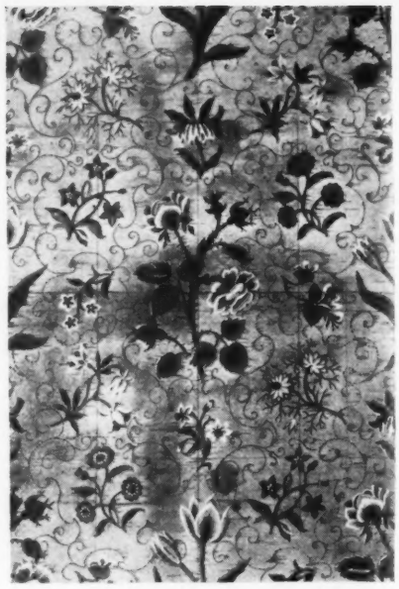
Analysis of Viscose-Cotton Mixtures

A method for the determination of viscose in garnetted mixtures of rayon and cotton waste was described by P. McGregor in the February issue of the *Journal of the Textile Institute*. The procedure recommended is as follows: A 1-gram sample, previously freed from oil and other extraneous matter and conditioned by exposure for 24 hr. in an atmosphere of 60 to 65% relative humidity at ordinary temperature, is placed in a 250- to 300-ml. conical flask with 70 ml. of calcium thiocyanate solution at a strength of 80 g. per 100 ml. and slightly acidified with glacial acetic acid. The flask is then clamped securely in a water bath at a temperature of 70 to 80° C. and the contents stirred mechanically (approximately 400 r.p.m.) for 30 min. The contents of the flask are then filtered through a Jena glass filter crucible connected to an efficient suction pump, and the cotton residue pressed with a flat-ended glass rod. The cotton is then replaced in the conical flask and the treatment repeated with a further 30 ml. of acidified thiocyanate solution for 10 min. After filtration, the cotton wad is removed, boiled for 30 min. in two successive portions of distilled water, washed, dried in the oven, and weighed after being reconditioned for 24 hr.

•

Screen-Printed Fabrics Rival Wood-Block Work

Production of printed fabrics by the screen process has never been very popular in England, although the method has been used for decoration of scarves, acetate dress fabrics, etc., by one or two firms in the silk districts of Macclesfield and Leek. According to one of our English correspondents, however, the Ramsden Wood Print Works, Lancashire, is, after three years of intensive experimentation, putting on the market screen-printed fabrics which rival the best results of the wood-block process.



The fabric shown in the accompanying illustration was printed with fourteen screens, and indicates the degree to which the process has been developed. It will be noted that the register is perfect, that the blotch or ground color is perfectly homogeneous, and that there are no signs of the screen joins within it. This print demonstrates also the fineness of line which can be obtained.

Production is rapid, the laying of the screens having been partially mechanized. Since a full piece of cloth can be traversed in 2½ min., a sixteen-screen design can be completed in one day. Drying is accelerated by the use of specially heated tables; and two tables are employed at once on the same design, one color drying while the other is being printed. Costs are about one-quarter of those for similar block-printed work; and it is said that only an expert can distinguish between the prints produced by this method and those obtained by the older process.

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Textile Printing Colorists Elect Officers

H. C. Copithorne, of Middlesex Bleachery Dye & Print Works, was elected president of the National Association of Textile Printing Colorists at a meeting held recently in Paterson, N. J. Other officers named were: vice-presidents — Edwin Farsworth, Apponaug Co.; Edward Roegner, Waldrich Co.; Howard Revell, Glasgow Finishing Co.; William Custer, Cheney Bros.; Clarence F. Hoppe, Apex-Oriental Silk Printing Co.; William Dickerson, National Silk Dyeing Co.; treasurer—Leon Wheeler, Jewett City Textile Novelty Co.; executive secretary—Fred L. Babcock, of Cambridge, Mass.

Speakers at the technical session were Fred LaPiana of Stein Hall Co.; Dr. E. W. Pierce, Ciba Co.; and T. H. Roberts, of Arnold Hoffman Co. The next meeting of the association will be held in Providence, R. I., in July.

Mercerization for Strength

Studies on the mercerization of cotton to determine the conditions necessary for the production of yarn having the maximum strength for a given weight have been completed recently by J. B. Wilkie, assistant chemist, Textile Section, U. S. Bureau of Standards. The investigation showed that the strongest mercerized yarn of a given count from a given quality of cotton is obtained under the following conditions: (1) Use of low-twist yarn obtained with twist multipliers from 2.2 to 3; (2) thorough pretreatment of the yarn to remove all extraneous materials; (3) mercerization at a tempertaure of 0° C., or lower; (4) use of sufficient tension during mercerization to prevent the yarn from contracting more than 3%; (5) use of caustic solution having a concentration of 10% or higher; and (6) mercerization time to be 5 min.

The resulting yarn should be from 40 to 100% stronger than the original yarn of the same weight.

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Shrinkage Test

At a recent meeting of Committee D-13, of the American Society for Testing Materials, a standard method for determining the amount of shrinkage which may be expected in fabrics upon laundering was proposed. This method differs slightly from that advocated by Howard D. Clayton, of Cluett, Peabody & Co., Inc. (TEXTILE WORLD, February, 1933, page 100). The chief differences are, first, that it provides for marking off the test sample in three 18-in. lengths in both warp and filling, and reporting the results as the average obtained from the three lengths; and second, that it allows for machine pressing of the dried and conditioned samples.

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Lin-N-Craft

Announcement was made recently of Lin-N-Craft, a new type of fabric produced by treating cotton with a cellulose solution prepared from flax. This material, which is being manufactured and distributed by the Erlanger Cotton Mills Co., Lexington, N. C., and subsidiary companies, is said to combine the desirable qualities of linen and cotton. Shirts, pajamas, shorts, and union suits made of Lin-N-Craft are now being offered to the trade; and sheets and pillow cases of this fabric are to be put into production within a short time.

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Finishers' Association Elects Secretary-Treasurer

Alice C. Moore, for many years with the National Association of Finishers of Textile Fabrics, was elected secretary-treasurer of the association on May 9.

PROCESSING IN THIS ISSUE

	page
Saving Oil by Use of Salt in Silk Soaking	72
Cellophane-Faced Fabrics Open New Markets	73
Economies in Silk Dyeing and Finishing	76
Fatty Alcohol Sulphates—Properties and Use	79
Good Layout Expedites Folding and Packing	81
Finishing Gimp Fabric	84
Finishing Blankets	85
Sanforizing Range	96
Cloth Washer	96

New Dyestuffs

General Dyestuff Corp. announces the following new products: Diazo Brilliant Green 6G, a homogeneous developed color, recommended chiefly for printing. With Developer ZA it produces bright yellowish green shades which are dischargeable with Rongalite or zinc dust.

Cellitazol STN conc., a dyestuff for cellulose acetate, which gives a deep black shade of excellent fastness when diazotized and developed with Developer ON.

Diazopon A, a product which added to the developing bath of Naphtol AS dyeings, improves the fastness to rubbing by forming a stable and easily removed colloidal solution with the unfixed color lake present in the bath.

E. I. du Pont de Nemours & Co., announces the following new product:

Pontamine Diazo Green GW, a developed color which produces brilliant shades of yellowish green when diazotized and developed with Pontamine Developer ZN. This dyestuff is recommended for use on cotton, rayon, and pure silk; on cotton-rayon mixed goods it gives an excellent union in full shades at temperatures near the boil.

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Effect of Sunlight On Cotton Fabrics

Results of extensive investigations, at the Texas Agricultural Experiment Station, on the effect of sunlight and other factors on the strength and color of cotton fabrics indicate that unbleached, mercerized cotton goods show the least tendering. Other findings as reported in Bulletin 474 issued recently by the Station are as follows: All fabrics tested, when exposed to sunlight for 375 hr. showed a change in strength and color, the loss in strength being 8 to 47% in the warp and 18 to 58% in the filling. Fabrics dyed with vat colors (with the exception of those dyed with colors known to cause a loss in strength) lost less strength than those dyed with direct colors. In general, dark shades were less weakened than light shades. Coarse, hard-twisted yarns are less tendered than fine, soft-twisted yarns. Of environmental factors, hours of exposure had the greatest effect on tensile strength, with temperature next, accounting for twice as much change as did relative humidity. A comparison of sizes and finishes with loss in strength suggested that some of these added substances had a tendering effect.

Spectrophotometric analysis of the color of each fabric before and after exposure to sunlight showed that all fabrics, whether white or dyed, underwent some change in color. Unbleached fabrics became lighter; and bleached, undyed fabrics became grayer and more yellow. The dyed fabrics varied in the type and extent of color change. Some became lighter, some darker, some darker and then lighter; others changed in hue.

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Processing Plant News

Central Dyeing & Finishing Co., Middletown, Conn., shut down for nearly a week last month when the spring freshet flooded the mill basement.

Pyramid Piece Dye Works, Inc., Union City, N. J., represented by Frank J. Raia, 3 Anderson Avenue, Fairview, N. J., has been organized with capital of $25,000, and plans early operation.

Millbank Bleachery Co., Lodi, N. J., real and personal property, was sold to John H. McGuire for $129,300, according to court confirmation issued on April 25. The company has been in receivership.

Passaic (N. J.) Piece Dye Works is erecting a 300 hp. auxiliary boiler to its plant to carry the work until repairs can be made to its two regular boilers.

Delagrave Co., Newark, N. J., has leased the old Meadow Brook Yarn mill, Jewett City, Conn., and will operate it as a textile engraving plant, producing copper pattern rolls for printing. Thomas A. Garlick will be superintendent. About 50 hands will be employed.

Great Falls Bleachery & Dye Works, Somersworth, N. H., lately owned by Nashua (N. H.) Mfg. Co., and previously by Dwight Mfg. Co., has been acquired by new interests, headed by Harold O. Jackson, present master mechanic of the plant. New owners who are the operating executives of the plant will continue operations as heretofore. Millard E. Foss will continue as superintendent.

QUOTATIONS

At close of business, May 1, 1933.

Prices cover average qualities unless otherwise stated.

Cotton Goods

	May 1	April 1	May 1 1932
PRINT CLOTHS			
27 -in., 64x60, 7.60	3 1/16	2 1/4	2 1/2
38½-in., 64x60, 5.35	4 1/2	3 1/2	3 1/2
39 -in., 68x72, 4.75	5	3 7/16	3 1/2
39 -in., 72x76, 4.25	5 1/2	4 1/2	4 1/2
39 -in., 80x80, 4.00	4 1/2	4 1/2	4 1/2
BROWN SHEETINGS			
36-in., 56x60, 4.00	4 3/4	3 1/2	4 1/2
36-in., 48x48, 5.00	3 1/2	4 1/2	4 1/2
37-in., 48x48, 4.00	4 1/2	3 1/2	3 1/2
MISCELLANEOUS			
Drills, 37-in., 3 yd..	5 1/4	4 1/4	4 3/4
Denims, 2.20.....	9 1/2	9	9 1/2
Tickings, 8 oz.....	10 1/2	10	11c
Standard prints....	6	5 1/4	6 1/4

Cotton Waste

Peeler comber	7.50c
Peeler strip	6.75c
White spooler (single)	4.50c

Cotton Prices

Spot Cotton at:	May 1	April 1	For Month High	For Month Low	1932 May 2
New York	8.25	6.40	7.90	6.40	5.70
New Orleans	8.00	6.33	7.71	6.33	5.67
Liverpool	5.73	5.06	5.55	5.06	4.57

FLUCTUATIONS OF FUTURES

	Closed May 1	For Month High	For Month Low	Closed Apr. 1	Net Change
May.....	8.09	7.75	6.34	6.34	+1.75
June.....	8.14	7.81	6.42	6.42	+1.72
July.....	8.21	7.80	6.50	6.50	+1.71
Aug.....	8.27	7.93	6.57	6.57	+1.70
Sept.....	8.34	8.05	6.63	6.70	+1.64
Oct.....	8.42	8.13	6.70	6.77	+1.65
Nov.....	8.49	8.16	6.77	6.85	+1.64
Dec.....	8.57	8.26	6.85	6.91	+1.66
Jan.....	8.68	8.31	6.91	6.97	+1.71
Feb.....	8.75	8.41	6.97	7.04	+1.71
Mar.....	8.82	8.48	7.04	7.04	+1.78

AVERAGE PRICE MAY-JUNE SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1 1/16-in	10 1/2c.	11 1/2c.
1 1/16-in	11 1/4c.	13 1/2c.
1 1/4-in	14 1/4c.	16 1/4c.

Based on New York, July, 8.27.

FOREIGN COTTONS

Alexandria Exchange, May 1		Change
May, Sak	13.47	+ .66
June Uppers	11.78	+ .99
May-June Shipment c.i.f. Boston (Tariff not included)		
Fully good fair Sak (No. 38).....	13.95	+2.60
Fully good fair to good Uppers (No. 10) (By Anderson, Clayton & Co.)	12.90	+2.65
India Rough, Calcutta Camilla		7.50
Peruvian Tangius Strict Middling		19 1/4
China Tientsin No. 1		8 1/4

Prices on this page represent fair market values on May 1, 1933, except where other previous dates are given. In numerous instances prices had risen still further before our press date and news regarding this will be found in the Digest sections.

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c., higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s.....	$0.15	20s.....	$0.18
10s.....	– .15½	24s.....	– .20
12s.....	– .16	26s.....	– .21
16s.....	– .17	30s.....	– .22

TWO-PLY SKEINS AND TUBES

8s-2.....	$0.15½	20s-2.....	$0.18½
10s-2.....	– .16	24s-2.....	– .20½
14s-2.....	– .17	30s-2.....	– .22½
16s-2.....	– .17½	40s-2.....	– .27½

SINGLE WARPS

10s.....	$0.16	20s.....	$0.18½
14s.....	– .17	24s.....	– .20
16s.....	– .17½	30s.....	– .22½

TWO-PLY WARPS

8s-2.....	$0.16	20s-2.....	$0.19
10s-2.....	– .16½	24s-2.....	– .21
14s-2.....	– .17½	30s-2.....	– .23
16s-2.....	– .18	40s-2 ordin.	– .28

HOSIERY CONES (Frame Spun)

8s.....	$0.16	18s.....	$0.18½
10s.....	– .16½	20s.....	– .19
12s.....	– .17	22s.....	– .20
14s.....	– .17½	24s.....	– .21
16s.....	– .18	26s.....	– .22

COMBED PEELER (Average Quality)
TWO-PLY — (Knitting Twist) Cones

20s-2.....	$0.26	50s-2.....	$0.39
30s-2.....	– .29	60s-2.....	– .45
40s-2.....	– .33	80s-2.....	– .66

WARPS, SKEINS AND CONES
TWO-PLY — (Warp Twist)

20s-2.....	$0.26	50s-2.....	$0.40
30s-2.....	– .29	60s-2.....	– .45
36s-2.....	– .31	70s-2.....	– .56
40s-2.....	– .34	80s-2.....	– .66

SINGLES

14s.....	$0.23	38s.....	$0.33
20s.....	– .24½	40s.....	– .34
28s.....	– .28	50s.....	– .40
30s.....	– .28½	60s.....	– .45

MERCERIZED CONES — (Combed, Ungassed)

30s-2.....	$0.38½	60s-2.....	$0.52
40s-2.....	– .42	80s-2.....	– .77

Raw Silk

Prices Nominal

	13/15 White	20/22½ White	20/22½ Yellow
Super Grand, 87%...	$1.83	$1.79	$1.77
Special Grand, 85%..	1.78½	1.73	1.70
Grand XX, 83%.....	1.72½	1.70	1.67
Special Crack, 81%..	1.67	1.68	1.65
Crack XX, 78%.....	1.63	1.65	1.62
Extra, Extra 73%....	1.61	1.62	1.60
Best Extra, 68%.....	1.55	.....	.....

RAW SILK EXCHANGE

	May 1	April 1	For Month High	For Month Low	April 26 1932
May.....	1.59	1.11	1.44	1.11	1.35
June.....	1.58	1.10	1.41	1.10	1.38
July.....	1.59	1.10	1.42	1.10	1.38
August....	1.58	1.10	1.41	1.10	1.41
September	1.59	1.10	1.42	1.10	1.40
October...	1.58	1.10	1.42	1.10	1.41
November	1.60	1.11	1.43	1.11	1.41
December	1.60	.....	1.43	....	1.41

Silk Yarns

Hosiery tram 5thd, Japan, 85%	$2.50
Hosiery tram, crack XX 78%	2.32½
60/2 spun silk	2.40

RAYON WASTE

Thread	8–11½

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne..	0.21–$0.22	¾ blood....	$0.21–$0.22
Fine clthg.	.17– .19	¼ blood....	.21– .22
½ blood....	.20½– .21		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.49 –$0.51
California, Northern	.41 – .43

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.51 –$0.53
Staple ½ bld	.50 – .53
Fine and fine medium (original bag)	.50 – .53
¾ blood	.43 – .47
½ blood	.41 – .43

PULLED — EASTERN (CLEAN BASIS)

A.A	$0.51 –$0.53	B-Super..	$0.37 –$0.40
A-Super...	.45 – .47	C-Super..	.36 – .38

CARPET WOOL (Nominal)

Aleppo (clean)	$0.16 –$0.18
Sining	.11½– .12
China filling (clean)	.15 – .17

Tops and Noils

TOPS — BOSTON

Fine (64-66s)	$0.72 –$0.74
Half-blood (60-62s)	.70 – .72
Aver. ¾ blood (56s)	.61 – .64
½ blood (50s)	.56 – .58

NEW YORK TOP FUTURES

	Closed May 1	For Month— High	For Month— Low	Closed April 1
May.....	65.50	65.60	52.10	52.10
June.....	66.30	66.00	52.80	52.80
September...	67.00	67.10	53.30	53.60
December...	68.00	68.00	53.60	54.20
January.....	68.20	68.10	53.70	53.70

TOPS — BRADFORD, ENG. (Apr. 27)

Fine (64s).....	23½d	¾ bld. (56s).....	17½d
½ bld. (60s).....	21 d	¼ bld. (50s).....	11½d

NOILS — BOSTON

Fine.....	$0.40 –$0.43	¾ bld.....	$0.30 –$0.33
Half-bld...	.37 – .39	¼ bld.....	.27 – .30

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s...	$0.68 –$0.69	2-36s 58s..	$0.90 –$0.95
2-30s 46s...	.76 – .78	2-40s 60s..	.95 – .97½
2-30s mixes	1.00 – 1.05	2-50s 64s..	1.10 – 1.15

ENGLISH SYSTEM KNITTING

2-20s 44s..	$0.62½–$0.67½	2-20s 60s..	$0.77½–$0.80
2-20s 50s..	.70 – .75	2-20s 64s..	.82½– .87½

FRENCH SYSTEM

1-26s 64s.	$0.80 –$0.85	2-40s 64s	
1-30s 64s warp....	.95 – 1.00	Zephyrs	$1.05 –$1.10
		2-50s 66s..	1.17½– 1.20

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.10	150	24–40	$0.55
75	30	.87	150	60	.60
100	40	.72	300	44	.45
125	36	.60			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75.....	$0.87–$0.97	150.....	$0.60
100.....	.72 .82	175.....	.60

ACETATE PROCESS

Denier	Price	Denier	Price
45.....	$1.10–$1.15	100.....	$0.95–$1.00
60.....	1.05	120–125.....	.90
75.....	1.00– 1.05	150.....	.85– .90

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.45	100	75	$0.85
75	60	1.05	150	112	.75